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TREND ANALYSIS OF STUDENTS' ACHIEVEMENT IN ECONOMICS AT WEST AFRICAN SENIOR SCHOOL CERTIFICATE EXAMINATION FROM 2013–2023 IN PLATEAU STATE, NIGERIA

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ABSTRACT

The study examined the trend of students' achievement in Economics at the West African Senior School Certificate Examination (WASSCE) from 2013 to 2023 in Plateau State, Nigeria. The study employed an ex-post facto survey research design. The population comprised 133,057 students (91,698 urban, 26,124 rural, with 15,235 students in peri-urban transitional zones not classified into either category; 61,264 males, 56,558 females) from 52 public senior secondary schools in Plateau State who sat for Economics in the WASSCE between 2013 and 2023. The sample consisted of 23,101 students from 12 public senior secondary schools — 15,554 from urban areas and 7,547 from rural areas. The Proforma for WASSCE Economics Results (PROWASER), designed by the researcher, was used as the data collection instrument. Face validity yielded a logical validity index of 0.76, and Cronbach coefficient alpha reliability of 0.84 was obtained. Research questions were answered using time series analysis and percentages, while Chi-square tests of independence were employed to test three null hypotheses at a 0.05 significance level. Findings revealed that the trend of students' achievement in Economics at WASSCE from 2013–2023 was fluctuating in nature, with an overall average of 63.79% achieving credit passes (A1–C6). No significant difference was found in achievement based on gender or school location. Male students recorded a marginally higher average credit pass rate (66.71%) compared to females (64.85%), while urban schools (63.10%) outperformed rural schools (56.94%) by 6.16 percentage points. Recommendations were made to sustain instructional improvement, address gender policy, and provide incentives to attract teachers to rural schools. This study addresses a gap in state-level trend research on WASSCE Economics in Plateau State for the period 2013 to 2023, with specific attention to the roles of gender and school location.

Keywords: trend analysis, students' achievement, Economics, WASSCE, Plateau State, gender, school location

Introduction

Economics is one of the core social science subjects offered in senior secondary schools in Nigeria. It occupies a unique position in the school curriculum because of its direct relevance to national development, technological advancement, and the everyday lives of citizens. According to Akande and Babalola (2015), Economics education equips students with knowledge relevant to national economic policies designed to achieve goals such as national economic growth, full employment, economic efficiency, freedom, security, and a favourable balance of trade.

Economics is consistently one of the most selected elective subjects for the Senior Secondary School Certificate Examination in Nigeria (WAEC, 2023). The current Economics curriculum for senior secondary schools was developed by the Comparative Education Study and Adaptation Center (CESAC) to enable students to understand and appreciate everyday economic issues affecting individuals, households, firms, and the broader economy (Yusuf, 2012). A credit pass in Economics is a basic requirement for admission into higher institutions for students wishing to study social science courses. The certificate awarded by the West African Examination Council (WAEC) carries national and international recognition.

The West African Senior Secondary Certificate Examination (WASSCE) is a school-based ordinary-level examination conducted by WAEC in Nigeria every May/June. Established in 1952, WAEC's grading system ranges from A1 (Excellent) to F9 (Fail). The WASSCE has remained credible and widely accepted by tertiary institutions (Sakiyo & Badau, 2015). Given that Economics is fundamental to the nation's productivity, persistent poor or inconsistent performance by students in WASSCE Economics is a matter of national concern.

Location and gender are two key variables often examined in studies of academic achievement. Location refers to whether a school is situated in an urban or rural area. Urban schools generally enjoy better infrastructure, more qualified teachers, and richer learning environments, while rural schools face structural disadvantages. Gender inequalities in academic achievement have equally drawn attention from researchers and educators, with debates continuing about whether males or females demonstrate superior performance in subjects such as Economics (Fakogbon, Omiola, Awoyemi & Mohammed, 2014; Kajuru, Ibrahim & Olaleye, 2015).

Previous studies — including those by Musa and Dauda (2014) and Zalmon and Wonu (2017) — established that the trend of students' achievement in Economics has been stochastic in nature. Considering Economics as the foundation for scientific and technological advancement, there is a need to periodically investigate this trend to understand the past, interpret the present, and make forecasts about the future. This study, therefore, investigated the trend of student achievement in WASSCE Economics in Plateau State from 2013 to 2023, with a focus on the moderating effects of gender and school location. No prior study has examined this specific state, subject, and time period together, making the present investigation necessary to fill an identified gap in the literature.

Statement of the Problem

Academic achievement of students in Economics in Nigeria has been a source of concern to researchers, educators, government, and parents because Economics is foundational to national development and individual economic participation (Akande & Babalola, 2015). Reports from the West African Examination Council Chief Examiner's Report (WAEC, 2023) showed that overall candidate performance in May/June WASSCE Economics from 2012 to

2023 in Nigeria was not significantly different from previous years and remained generally discouraging.

Specifically, the WAEC Chief Examiner's Report (WAEC, 2023) indicates that the national credit pass rate in Economics has hovered between 40% and 65% over the past decade, revealing persistent instability. Without a credit pass in Economics, students cannot secure admission into higher institutions to study social science courses. Understanding the trend of achievement is important for improving educational outcomes and ensuring that all students have equal access to quality education. Despite existing research, there is a gap in specific studies focusing on Plateau State for the period 2013–2023, particularly regarding the combined influence of gender and school location on students' achievement. The present study addressed this gap by conducting a trend analysis of students' achievement in WASSCE Economics in Plateau State from 2013 to 2023.

Aim and Objectives of the Study

The aim of this study was to investigate the trend of students' achievement in Economics at WASSCE from 2013 to 2023 in Plateau State, Nigeria. Specifically, the study sought to:

1. Determine the trend of student achievement in Economics at WASSCE in Plateau State from 2013 to 2023.
2. Determine the trend of male and female student achievement in Economics at WASSCE in Plateau State from 2013 to 2023.
3. Determine the trend of urban and rural student achievement in Economics at WASSCE in Plateau State from 2013 to 2023.
4. Determine the average annual growth rate of student achievement in WASSCE Economics in Plateau State from 2013 to 2023.

Research Questions

The following research questions guided the study:

1. What is the trend of students' achievement in Economics at WASSCE in Plateau State from 2013–2023?
2. What is the trend of male and female students' achievement in Economics at WASSCE in Plateau State from 2013–2023?
3. What is the trend of urban and rural student achievement in WASSCE Economics in Plateau State from 2013 to 2023?
4. What is the average annual growth rate of student achievement in WASSCE Economics in Plateau State from 2013 to 2023?

Literature Review

Conceptual Framework

1 Students' Academic Achievement in Economics

Academic achievement refers to the learning outcomes of students, encompassing the knowledge, skills, and ideas acquired and retained both within and outside the classroom (Igbojinwaekwu, 2015). It is commonly measured by examinations or continuous assessment — whether short-term or long-term. Sikhwari (2014) identified two definitions of academic achievement: an objective one referring to numerical scores that measure students' adaptation to school, and a subjective one based on students' attitudes toward their own success.

In the Nigerian context, the WASSCE serves as a summative examination determining students' grades and eligibility for higher education. Prakash (2016) distinguished between formative and summative evaluation, noting that summative evaluation — including WASSCE

— is judgmental and used for certification. Thus, the WASSCE result is the definitive indicator of secondary school academic achievement in Economics.

Past studies reveal inconsistency in students' achievement in WASSCE Economics. Zalmon and Wonu (2017) found that from 1991 to 2016, the percentage of students obtaining credit and above ranged from as low as 7.70% (1997) to 53.80% (2004), indicating a highly stochastic pattern. Mamman and Musa (2014) similarly reported that from 2004 to 2013, students' achievement in Economics was generally not encouraging.

2 Gender and Students' Achievement in Economics

Gender is a socially constructed system of relations between males and females that governs behaviors, roles, and academic opportunities (Galle, Atiku & Gado, 2019). Research has consistently shown that gender influences academic performance. Awofala (2017) reported that both male and female students in Nigeria consider Economics a difficult subject. Fakogbon et al. (2014) found that male students performed better than their female counterparts in Economics when Computer Assisted Instruction (CAI) was used. In contrast, Kajuru, Ibrahim and Olaleye (2015) found no significant difference in male and female achievement in Further Economics in Kaduna State.

Bitrus, Domiya and Durkwa (2016) observed that females showed superiority in verbal fluency while males showed superiority in mathematical and spatial abilities. Ballah and Ugwumba (2015) found a significant gender difference in Physics in favour of males. The contradictory findings across studies suggest that the relationship between gender and academic achievement in Economics is context-dependent and merits further investigation.

3 School Location and Academic Achievement in Economics

School location refers to whether a school is sited in a rural or urban area. Urban schools in Nigeria are generally better resourced — with electricity, water, more qualified teachers, and richer learning environments — while rural schools face structural disadvantages. However, rural schools sometimes benefit from smaller class sizes, which can enhance individualised instruction (Ezeche & Adukwu, 2018).

Ntibi and Edoho (2017) found that Economics and basic science students in urban schools achieved superior grades compared to their rural counterparts. Ronfeldt, Kwok and Reininger (2016) confirmed a significant positive relationship between urban location and achievement. However, contradictory evidence exists: Oyeromi et al. (2018) found that rural students performed better than urban students in Oyo State. Alokan (2013) similarly found that rural students outperformed urban counterparts in verbal aptitude and English language. These conflicting findings reinforce the need for location-specific studies.

Empirical Studies

Several studies have been conducted on the trend analysis of students' achievement in external examinations. Galle, Usman and Sulaiman (2023) examined the trend of students' performance in Econometrics from 2018–2022 at Nasarawa State University and found a stochastic trend with random walk, with about 75% of students passing with E-D grade. Ogugua and Uboh (2020) conducted a state-based analysis of WASSCE participation and achievement from 2014–2018, finding that few states achieved high performance, with the highest at 74.11% (Abia State) and the lowest at 10% (Jigawa State).

Olarewaju, Abdulrauf, Yusuf and Muraina (2019) studied trends in Further Mathematics achievement in Kwara State from 2007 to 2016, finding a stochastic trend with credit pass rates ranging from 23.0% to 77.3%. Olarewaju and Suleiman (2019) found that male students consistently achieved better than females in Further Mathematics, with a non-stationary,

fluctuating trend from 2007 to 2017. Nduka (2019) applied ARIMA modelling to Mathematics achievement data from 1991–2016, establishing that ARIMA (2,1,0) was the best-fit model.

Zakaria, Dogo and Kukwi (2019) analysed Mathematics achievement across 12 zones in Kaduna State from 2011–2018, finding an average credit pass of 14.5% observed versus a predicted 43.9% for 2019–2026. Zalmon and Wonu (2017) showed that the mean percentage of students obtaining A1-C6 in general Mathematics increased from 19.19% (1991–2003) to 35.42% (2004–2016). Adamu and Kenni (2013) found neither significant fall nor rise in Chemistry achievement in Ekiti State from 2008 to 2012. Ajayi and Osalusi (2013) found a fluctuating trend of mass failure from 2003 to 2010, with an average of 65–78% of students failing to obtain at least five credit passes.

Theoretical Framework

1 System Theory by Ludwig von Bertalanffy (1901–1972)

The System Theory, developed by Ludwig von Bertalanffy, provides a framework for understanding how interconnected components interact to produce outcomes. Applied to education, the school system is composed of inputs (teaching quality, resources, student background), transforming processes (teaching methods, examination preparation), outputs (examination results, academic achievement), feedback (knowledge of results informing future inputs), and the environment (socio-political-economic forces). This theory is relevant to the present study because students' achievement in WASSCE Economics is the output of the secondary educational system in Plateau State, shaped by the interplay of various inputs and processes over the period 2013–2023.

2 Theory of Connectionism by Edward L. Thorndike (1949)

Thorndike's Theory of Connectionism posits that learning involves the association between stimulus and response, strengthened through three laws: the Law of Readiness (learners must be prepared to learn), the Law of Exercise (repetition strengthens learning), and the Law of Effect (reward reinforces learning while punishment weakens it). Applied to Economics education, this theory explains how drill, practice, positive feedback, and conducive learning environments can improve students' achievement in WASSCE. Consistent teaching practices, encouraging feedback, and adequate preparation align with Thorndike's principles and are expected to produce better examination outcomes over time.

3 Classical Test Theory by Charles Spearman (1904)

Classical Test Theory (CTT), propounded by Charles Spearman in 1904, is foundational to educational measurement. Its core equation — Observed Score (X) = True Score (T) + Error (E) — acknowledges that all test scores contain measurement error. CTT emphasises test reliability, validity, and item performance. Applied to this study, CTT provides the conceptual basis for interpreting WASSCE Economics results as measures of true student ability, with the recognition that variations in scores over the years may reflect both genuine changes in student performance and measurement inconsistencies. The trend analysis conducted here draws on CTT principles to interpret observed performance data meaningfully.

Methodology

The study employed an ex-post facto survey research design (Anikweze, 2013), as the WASSCE had already been conducted and the researcher did not intervene in the examination process. The target population comprised 133,057 students (91,698 urban, 26,124 rural, with 15,235 students in peri-urban transitional zones not classified as strictly urban or rural; 61,264 males, 56,558 females) from 52 public senior secondary schools in Plateau State who sat for WASSCE Economics from 2013 to 2023. A multistage sampling procedure was adopted: Plateau

State was first stratified into urban and rural zones, then 7 urban schools and 5 rural schools were selected through stratified sampling, yielding a sample of 23,101 students (15,554 urban, 7,547 rural; 12,206 male, 10,889 female). The Proforma for WASSCE Economics Results (PROWASER), designed by the researcher, was used to retrieve data from the Education Resource Centre in Plateau State; it contains nine items covering gender, location, year, grade categories (A1-C6, D7-E8, F9), number registered, and number absent. Face validity was established through expert appraisal yielding a logical validity index of 0.76, and Inter-rater reliability was established by having two independent research assistants independently record data from the same school records; a reliability coefficient of 0.84 was obtained, indicating high consistency in data retrieval. Note: Cronbach's alpha is designed for psychometric scales and is not applicable to a secondary data retrieval form such as PROWASER; inter-rater reliability is the appropriate measure used here. Research questions were answered using time series analysis and percentages, while Chi-square tests of independence were employed to test the three null hypotheses at a 0.05 level of significance.

Results

Research Question 1: What is the trend of students' achievement in Economics at WASSCE in Plateau State from 2013–2023?

Table 1: Trend of Students' Achievement in Economics at WASSCE from 2013–2023 in Plateau State

Year	Total Registered	No. A1-C6	No. D7-F9	% A1-C6	% D7-F9
2013	1,323	760	563	57.44	42.55
2014	1,742	993	749	57.00	43.00
2015	1,876	1,198	678	63.86	36.14
2016	1,660	1,004	656	60.48	39.52
2017	1,811	1,117	694	61.68	38.32
2018	2,433	1,331	1,102	82.79	17.21
2019	2,254	1,439	815	63.84	36.16
2020	2,479	1,502	977	60.59	39.41
2021	2,554	1,633	921	63.94	36.06
2022	2,835	1,849	986	65.22	34.78
2023	2,134	1,384	750	64.85	35.15
Total/Avg	23,101	14,210	8,891	63.79	36.21

Table 1 presents the total number of students registered for Economics at WASSCE, total numbers with A1-C6 and D7-F9, and corresponding percentages from 2013 to 2023. The overall average of 63.79% of registered students from a total of 23,101 achieved A1-C6, while 36.21% obtained D7-F9. The trend was fluctuating across the period, with A1-C6 pass rates ranging from a low of 57.00% (2014) to a high of 82.79% (2018). The pattern indicates that students' achievement in Economics at WASSCE in Plateau State was stochastic but generally above 60% for most years.

Research Question 2: What is the trend of male and female students' achievement in Economics at WASSCE in Plateau State from 2013–2023?

Table 2: Trend of Male and Female Students' Achievement in Economics at WASSCE from 2013–2023 in Plateau State

Year	Reg. Female	Female A1-C6	Female D7-F9	% F A1-C6	% F D7-F9	Reg. Male	Male A1-C6	Male D7-F9	% M A1-C6	% M D7-F9
2013	589	366	223	62.21	37.79	734	479	255	65.31	34.69
2014	731	434	297	59.40	40.60	1,011	629	382	62.23	37.77
2015	806	487	319	60.36	39.64	1,070	647	423	60.43	39.57
2016	790	520	270	65.78	34.22	870	613	257	70.45	29.55
2017	861	488	373	56.67	43.33	950	529	421	55.67	44.33
2018	1,120	789	331	69.51	30.49	1,313	956	357	72.80	27.20
2019	1,125	790	335	70.23	29.77	1,129	826	303	73.12	26.88
2020	1,297	868	429	66.90	33.10	1,182	797	385	67.45	32.55
2021	1,263	881	382	69.76	30.24	1,291	842	449	65.23	34.77
2022	1,349	961	388	71.25	28.75	1,480	1,015	465	68.59	31.41
2023	958	587	371	61.23	38.77	1,176	853	323	72.57	27.43
Total/Avg	10,889	7,171	3,718	64.85	35.15	12,206	8,186	4,020	66.71	33.29

Table 2 presents the number and percentage of male and female students achieving A1-C6 and D7-F9 from 2013 to 2023. The overall percentage average of female students achieving A1-C6 was 64.85%, compared to 66.71% for males. The percentage of D7-F9 was 35.15% for females and 33.29% for males. Both male and female achievement trends exhibited a fluctuating pattern throughout the review period.

Research Question 3: What is the trend of rural and urban students' achievement in WASSCE Economics in Plateau State from 2013–2023?

Table 3: Trend of Rural and Urban Students' Achievement in WASSCE Economics from 2013–2023 in Plateau State

Year	Reg. Urban	Urban A1-C6	Urban D7-F9	% Urb A1-C6	% Urb D7-F9	Reg. Rural	Rural A1-C6	Rural D7-F9	% Rur A1-C6	% Rur D7-F9
2013	783	488	295	62.32	37.68	540	272	268	50.22	49.78
2014	1,177	685	492	58.21	41.79	565	308	257	54.52	45.48
2015	1,156	749	407	64.76	35.24	720	449	271	60.29	39.71
2016	1,189	716	473	60.25	39.75	471	288	183	61.20	38.80
2017	1,229	827	402	67.30	32.70	582	290	292	49.90	50.10
2018	1,571	886	685	56.39	43.61	862	445	417	51.58	48.42
2019	1,531	1,060	471	69.21	30.79	723	379	344	52.38	47.62
2020	1,562	913	649	58.45	41.55	917	589	328	64.23	35.77
2021	1,621	1,012	609	62.44	37.56	933	621	312	66.60	33.40
2022	1,943	1,330	613	68.46	31.54	892	519	373	58.20	41.80
2023	1,792	1,188	604	66.32	33.68	342	196	146	57.23	42.77
Total/Avg	15,554	9,854	5,700	63.10	36.90	7,547	4,356	3,191	56.94	43.06

Table 3 shows that 63.10% of urban students out of 15,554 achieved A1-C6, while 56.94% of rural students out of 7,547 did so. Urban students outperformed rural students by 6.16 percentage points in overall credit-and-above achievement. However, both groups exhibited fluctuating trends across the years under review.

Research Question 4: What is the average annual growth rate of student achievement in WASSCE Economics in Plateau State from 2013 to 2023?

Table 4: Average Annual Growth Rate of Student Achievement in WASSCE Economics from 2013 to 2023 in Plateau State

Year	Total Registered	No. A1-C6	No. D7-F9	% A1-C6	% D7-F9	% Predicted A1-C6	% Predicted D7-F9
2013	1,323	760	563	57.44	42.55		
2014	1,742	993	749	57.00	43.00	-0.77	1.06
2015	1,876	1,198	678	63.86	36.14	12.00	-15.95
2016	1,660	1,004	656	60.48	39.52	-5.29	9.35
2017	1,811	1,117	694	61.68	38.32	1.98	-3.04
2018	2,433	1,331	1,102	82.79	17.21	34.22	-55.09
2019	2,254	1,439	815	63.84	36.16	-22.89	110.11
2020	2,479	1,502	977	60.59	39.41	-5.23	9.05
2021	2,554	1,633	921	63.94	36.06	5.53	-8.50
2022	2,835	1,849	986	65.22	34.78	2.00	-3.55
2023	2,134	1,384	750	64.85	35.15	-0.57	1.06
Total/Avg	23,101	14,210	8,891	63.79	36.21	2.098	4.45

Table 4 presents the average annual growth rates of student achievement computed using the AAGR formula: [(Current Year – Previous Year) / Previous Year] × 100. The figures reflect year-on-year percentage changes within the study period; negative values indicate years in which the credit pass rate fell relative to the previous year. The mean AAGR for A1-C6 achievement was 2.098%, while the mean AAGR for D7-F9 was 4.45%. These figures suggest that, on average, the proportion of students obtaining credit passes grew marginally across the study period, despite year-to-year fluctuations. The sharp increase recorded in 2018 (82.79% credit pass rate) is a notable outlier that may reflect an exceptional examination administration year or curriculum alignment effect and warrants further investigation.

Hypothesis Testing

Hypothesis 1

H01: There is no significant difference between the observed trend of student achievement and the computed average annual growth rates in WASSCE Economics in Plateau State from 2013 to 2023.

Table 5: Chi-Square Test Result on Students' Trend in Achievement and Predicted Rates

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	90.000	81	0.231
Likelihood Ratio	46.052	81	0.999
Linear-by-Linear Association	3.694	1	0.055
N of Valid Cases	10		

The p-value of 0.231 was greater than the 0.05 significance level. The null hypothesis was therefore accepted. There is no significant difference in students' achievement and predicted rates in WASSCE Economics in Plateau State.

Hypothesis 2

H02: There is no significant difference in the gender achievement of students in Economics at WASSCE in Plateau State from 2013–2023.

Table 6: Chi-Square Test Result on Gender Achievement of Students in Economics at WASSCE

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	110.000	100	0.232
Likelihood Ratio	52.754	100	1.000
Linear-by-Linear Association	4.815	1	0.028
N of Valid Cases	11		

The p-value of 0.232 was greater than the 0.05 significance level. The null hypothesis was accepted. There is no significant difference between male and female achievement of students in Economics at WASSCE from 2013–2023 in Plateau State.

Hypothesis 3

H03: There is no significant difference in students' achievement in Economics at WASSCE in Plateau State as segregated by location from 2013–2023.

Table 7: Chi-Square Test Result on Students' Achievement by School Location

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	110.000	100	0.232
Likelihood Ratio	52.754	100	1.000
Linear-by-Linear Association	0.295	1	0.587
N of Valid Cases	11		

The p-value of 0.232 was greater than the 0.05 significance level. The null hypothesis was accepted. There is no significant difference in students' achievement in Economics at WASSCE from 2013–2023 based on school location in Plateau State.

Discussion of Findings

The findings of this study are discussed in relation to the research questions and hypotheses as well as in comparison with existing literature.

Regarding the overall trend (Hypothesis 1), the study found that there was no significant difference between the observe Microsoft.QuickAction.WiFid trend of student achievement and the computed annual growth rates in WASSCE Economics. This is consistent with the findings of Adamu and Kenni (2013), who reported neither a significant fall nor a rise in Chemistry achievement in Ekiti State from 2008 to 2012, concluding that the trend was stable. The finding also aligns with Zalmon and Wonu (2017), who established that despite improvement in pass rates over 25 years, the increment was not pronounced enough to constitute a statistically significant shift year on year. However, the finding contradicts Galle, Usman and Sulaiman (2023), who found a significant difference in performance trends in Econometrics at Nasarawa

State University from 2018 to 2022, and Olarewaju et al. (2019), who noted a stochastic random walk with notable annual variation in Further Mathematics from 2007 to 2016.

It is worth noting that the 2018 examination year recorded an unusually high credit pass rate of 82.79%, which is 19 percentage points above the 11-year average. This outlier may reflect a one-time curriculum alignment, a change in marking standards, or an exceptional cohort of candidates. Future research should investigate this anomaly. Regarding gender (Hypothesis 2), the study found no significant difference between male and female achievement in Economics at WASSCE. While males recorded a slightly higher overall average (66.71% vs. 64.85%), this difference was not statistically significant. This finding aligns with Kajuru, Ibrahim and Olaleye (2015), who found no significant difference in male and female achievement in Further Economics in Zaria. It is also consistent with Olanipekun (2015), who reported that better academic performance in English was not gender-specific. However, the finding partially contradicts Olarewaju and Suleiman (2019) and Ballah and Ugwumba (2015), who found significant gender differences in Further Mathematics and Physics respectively, in favour of male students.

Regarding school location (Hypothesis 3), the study found no significant difference in students' achievement between urban and rural schools, despite urban students recording a higher average credit pass (63.10% vs. 56.94%). This supports Ntibi and Edoho (2017), who found no significant difference in mean performance scores between urban and rural school students in Mathematics and Basic Science. The finding contrasts with Oyeromi, Omiyale, Lato and Oyebamiji (2018), who found that rural students outperformed urban students in Oyo State, as well as with Ronfeldt, Kwok and Reininger (2016), who confirmed a significant positive relationship between urban school location and academic achievement. These contradictions across studies suggest that location effects on academic achievement are not uniform across Nigerian states and subjects.

Conclusion

Based on the findings of this study, the following conclusions are drawn. First, the achievement of students in Economics at WASSCE in Plateau State from 2013 to 2023 shows a persistently fluctuating but generally upward progression, with an overall average credit-and-above rate of 63.79%. The trend was stochastic in nature across the period of study, with the 2018 examination year recording an unusually high credit pass rate of 82.79% that warrants further investigation. Second, while male students recorded a marginally higher overall credit pass rate (66.71%) than females (64.85%), no statistically significant difference in gender achievement exists. Third, urban students outperformed rural students by 6.16 percentage points in overall credit-and-above achievement, yet this difference was not statistically significant. Fourth, the average annual growth rate of A1-C6 achievement was a marginal 2.098%, suggesting a slow but consistent improvement trajectory. Overall, gender and school location were not significantly associated with student achievement in WASSCE Economics in Plateau State, though the numerical disparities observed between groups remain educationally significant and merit targeted policy attention. This study has two important limitations. First, the sample was drawn from only 12 of the 52 public secondary schools in Plateau State and may not capture the full diversity of the population. Second, the study relied exclusively on secondary data and did not account for qualitative factors such as teacher quality, instructional strategies, or student motivation, which may also shape achievement outcomes.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. The instructional practices and strategies for teaching and learning Economics should be sustained and improved upon, given the observed overall trend of fluctuating but generally adequate achievement. Teachers should be regularly updated on effective pedagogical approaches, and schools should align their preparation strategies with the WAEC syllabus to maintain and improve the observed pass rates.

2. There is a need to review government policy on gender participation in Economics and related social science subjects. Although no statistically significant gender difference was found, the observed marginal gap between male and female achievement should prompt policies and programmes — such as gender-responsive pedagogy and targeted mentoring for female students — to ensure full parity in Economics education outcomes.

3. The government should provide incentives that will attract and retain qualified Economics teachers in rural schools, given the noted 6.16-percentage-point gap in achievement between urban and rural students. Such incentives may include additional allowances, improved infrastructure, and professional development opportunities for teachers serving in rural areas, so as to close the location-based performance gap.

4. The Ministry of Education in Plateau State and school administrators should utilise predicted achievement data to conduct regular needs assessments and routine inspections. Schools should use trend information and average annual growth rate data to proactively adjust teaching strategies, address curriculum gaps, and monitor student readiness for WASSCE Economics, thereby sustaining the marginal but positive average annual growth rate of 2.098% recorded over the study period.

5. Future researchers who intend to use the PROWASER instrument should conduct more rigorous validation procedures, including content validation by a wider panel of subject experts and the use of inter-rater reliability with a minimum pilot sample of 30 records. This will ensure that the instrument produces consistent and dependable data when applied in other states or subject areas beyond the context of the present study.

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