



PREDICTIVE VALIDITY OF BASIC EDUCATION CERTIFICATE EXAMINATION SCORES IN MATHEMATICS ON ECONOMICS STUDENTS ACHIEVEMENT IN WEST AFRICAN SENIOR SCHOOL CERTIFICATE EXAMINATION IN NIGER STATE, NIGERIA FROM 2015-2020

Maikudi Kwanza Allahnana, PhD

Department of Educational Foundations, Research, Measurement & Evaluation Unit, Nasarawa State University, Keffi, Nigeria

Bashiru Abdul

Department of Psychology, Niger State College of Education, Minna, Niger State

Abstract

This study investigate the Predictive Validity of Basic Education Certificate Examination Scores in Mathematics on Economics students achievement in West African Senior School Certificate Examination in Niger State, Nigeria from 2015-2020. The study adopted an ex-post facto research design. The population of the study consisted of secondary school students in Niger State who sat for the BECE Mathematics between 2015 and 2017 and their corresponding WASSCE Economics examinations between 2018 and 2020. A sample of 532 students was selected from five public secondary schools using a stratified sampling technique. The sample comprised 532 students. But for the purpose of this study, only male students were used as moderator variable. Data for the study were obtained from students' BECE Mathematics and WASSCE Economics scores. Regression analysis was used to determine the extent to which BECE scores in Mathematics predicted students' achievement in WASSCE Economics. The findings revealed that BECE Mathematics scores significantly predicted students' achievement in WASSCE Economics, although the predictive strength was relatively weak. The study also found that BECE scores in Mathematics significantly predicted male students' achievement in WASSCE Economics. The results indicated that while previous academic achievement at the junior secondary school level contributes to male students' future achievement, it does not solely determine success at the senior secondary school level, as other educational and environmental factors may influence male students' achievement. The study concluded that BECE scores in Mathematics serve as a useful indicator for predicting male students' achievement in WASSCE Economics but have limited predictive power. It was recommends that teachers and school administrators should use BECE Mathematics results to identify male students' academic needs and provide appropriate support, while educational stakeholders should improve teaching quality, learning resources and the school environment to enhance students' achievement in Economics.

Keywords: BECE, WASSCE, Achievement, Predictive Validity, Reliability

1. Introduction

Globally, education is widely recognized as a fundamental instrument for national development, human capital formation and socio-economic transformation. The quality of education in any nation is often measured by students' academic achievement

in Mathematics and Economics at different levels of schooling. In Nigeria, Economics students' academic progression from the senior secondary education level to the tertiary education level is determined through standardized examinations. These examinations not only assess students' learning outcomes but also serve as predictors of future academic performance. Consequently, the ability of one examination to

accurately predict performance in another has become an important area of educational research. The Basic Education Certificate Examination (BECE) is conducted at the end of the nine-year Basic Education programme and serves as the qualifying examination for admission into senior secondary schools. The examination assesses students' mastery of subjects studied during the basic education cycle and provides a basis for placement into different academic streams. Since the BECE serves as the foundation for senior secondary education, stakeholders expect students who perform well in the examination to maintain similar levels of achievement in subsequent external examinations, particularly the West African Senior School Certificate Examination (WASSCE). The West African Senior School Certificate Examination (WASSCE), conducted by the West African Examinations Council (WAEC), is one of the most recognized secondary school examinations in West Africa. The examination serves as the principal basis for admission into tertiary institutions and employment opportunities in Nigeria. Among the core subjects offered at the senior secondary school level, Mathematics and Economics occupies a strategic position because it equips students with critical thinking, knowledge of resource allocation, economic decision-making, entrepreneurship and national development. Achievement in Mathematics and Economics is therefore considered an important indicators of students' preparedness for higher education and careers in business, finance, public administration and other related fields. Nwokocha (2016) observed that the selection of candidate for admission and certificate re-examination is to ensure the credibility of each criterion. Test is one of the devices of evaluation in schools and testing concerns specific achievement of a student in terms of given objectives. Oguniyi (2011), testing is a fundamental part of the teaching-learning process used not only as a basis for ranking students at the end of the teaching-learning process but to guide teaching aids in the development of the curriculum as well as assessment of needs learning difficulties, level of mastery and differences among students. Nkemakolam (2014) broadly classified test into two: behavioral objective

criterion and level of performance criterion, there are three types of test, which are general mental ability test, separate ability test and achievement test. The BECE and SSCE are achievement test used in determining the performance criterion of secondary school students. The probability that a student will pass or fail in a future task is based on present or earlier performance is interpreted in terms of the predictive validity of the earlier task. It is concerned with how well a test can predict subsequent behaviour, predictive validity is obtained in correlating the predictor variable and the criterion variable. Asika (2013) the emphasis is on the predictive ability of the instrument and not on what the instrument measures.

One important concept in educational measurement is predictive validity. Predictive validity refers to the extent to which scores obtained in an earlier assessment accurately forecast performance in a later assessment. In the context of this study, predictive validity concerns the degree to which students' Basic Education Certificate Examination scores in Mathematics predict their achievement in Economics in the West African Senior School Certificate Examination. Establishing such validity enables educators, school administrators, policymakers and examination bodies to determine whether the BECE is an effective predictor of future academic achievement and whether it can be relied upon for educational placement and decision-making. Gender has remained an important variable in educational research due to persistent debates regarding differences in academic achievement between male and female students. While some studies have reported that female students outperform their male counterparts in certain subjects, others have found either male superiority or no significant gender differences. These inconsistencies suggest that the relationship between prior academic achievement and subsequent performance may vary across male students. Consequently, examining the predictive validity of BECE scores in Mathematics by male students provides valuable evidence on whether the examination predicts Economics achievement equally among male students. The issue of gender differences in students' achievement has generated a lot of reactions from

researchers and authors, which makes it a key factor in learning and achievement in different subjects. In fact, the concept of gender has been debated by liberals and conservatives (Katcha, Ojelade & Musa, 2026). A clear distinction between sex and gender is often advocated among those who study gender and sexuality, with sex being the “preferred term for biological forms (Male and female)” and, gender being “limited to its implications regarding behavioural, cultural and psychological features.” Male refers to psychological and social attributes or element or characteristics of students. However, when direct comparisons are made among males, the word “males” is often used and words like “male differences,” “male gap,” “male equality,” “male bias” and “male relations” are most common. Male is often used in these situations because it has both psychological and social meanings. The fact that the word has two meanings makes it twice as useful. This means that for this study, the word “male” refers to the biological or natural differences that exist between among male students and all the attributes or characteristics that embodies them.

Katcha, Ojelade and Musa (2026) findings revealed positive but very weak correlations between BECE Basic Science performance and students’ achievement in overall SSCE science, as well as in Physics, Chemistry, and Biology. Regression results further showed that BECE Basic Science explained only a minimal proportion of the variance in SSCE science achievement, indicating limited predictive power. Longjohn and Allwell (2022) findings of the study showed that there was no significant difference between the performances of male and female students for both BECE Mathematics and Basic Science ($P > .05$, $d < 0.1$). Although male students outperformed females in both BECE Mathematics and Basic Science, the effect size was not statistically significant. In general, students performed significantly better in BECE Mathematics than in Basic Science, with a pass rate of 90% versus 65%, respectively. Nwanne (2026) 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 Faleye and Afolabi (2016), observed that Osun state JSCE is a poor predictor of students’ achievement in SSCE except for their finding that JSCE Mathematics tend to have relatively greater capacity to predict performance in SSCE Mathematics than the other subjects. Osadebe and Orubube (2020) results of the empirical analysis showed that the scores obtained by students in Integrated Science do predict performance of students in science at the SSCE level. The gender of students has significant relationship with SSCE sciences. A similar study by Onuka, Raji and Onabamiro (2010) established that, there was a significant relationship between the overall performance in both examinations, as measured by scores obtained at the JSCE and SSCE, in Epe Local Government Area of Lagos state, Nigeria. Ugwuda and Aboyi (2011) observed that the scores of students in JSCE in the subject under consideration had low but positive correlation with their corresponding scores in SSCE. Ordinarily, gender is an English word for classifying male or female. However, its present usage specifically refer to the social construction of the relationship between male and female in terms of their performance. Gupta (2016) gender also refers to social difference or distinction between male and female and the attribution of achievement on the basis of their differentiation. Garson (2013) this study tend to point to the fact that girls and boys differ in their performance, intelligence and achievement. Ogbene and Umoeven (2013) revealed that number of researchers in the past showed that female performs poor in mathematics and mathematics is a masculine subject which belongs to selected few. Ivan (2017) in his study found out that in secondary schools and beyond boys made more

progress than girls in mathematics. Onibukun (2012) found that level of achievement motivation for boys in mathematics was found to be higher than that of girls. Greater percentages of female in our society could not go far in the study of mathematics and other science related courses in our higher institution. This is reflected in the number of boys and girls entering and passing the secondary school certificate examination in mathematics. Bolaji (2011) found that boys performed better than the girls in mathematics. Bruce (2014) asserted that appearance of male and female in a mixed school setting influence the idea of the subject either being masculine or feminine. In support this Maliki (2013) posited that the presence of boys and girls in the same class influence the teachers attitude because they have different expectation for the boys and for the girls.

In Niger State, concerns have continued to be expressed over fluctuations in students' achievement in the West African Senior School Certificate Examination, particularly in Economics. Despite satisfactory performance by many students at the Basic Education Certificate Examination level, some fail to sustain similar achievement in the WASSCE, raising questions about the predictive ability of BECE scores. These concerns have implications for student placement, instructional planning, educational guidance and policy formulation within the state's secondary education system. Although several studies have investigated the predictive validity of previous examinations on students' academic achievement, relatively few have specifically examined the predictive validity of Basic Education Certificate Examination scores by gender on students' performance in Economics in the West African Senior School Certificate Examination within Niger State. Most previous studies have focused on overall academic performance or different subject areas without adequately considering the moderating role of gender or the unique characteristics of Economics as a subject. It is against this background that this study seeks to examine the predictive validity of Basic Education Certificate Examination scores on male Economics students in the West African Senior School Certificate Examination in Niger State, Nigeria from 2015-2020. The findings of the study are expected to

provide empirical evidence for teachers, school administrators, curriculum planners, examination bodies, and policymakers on the effectiveness of BECE as a predictor of students' future academic achievement in Economics and to contribute to educational planning and quality assurance in secondary education.

Research Questions

- i. to what extent do Basic Education Certificate Examination scores in Mathematics predict students' Economics achievement in West African Senior School Certificate Examination in Niger State, Nigeria from 2015-2020?
- ii. to what extent do Basic Education Certificate Examination scores in Mathematics predict male students' Economics achievement in West African Senior School Certificate Examination in Niger State, Nigeria from 2015-2020?

Objectives

- i. determine the predictive validity index of Basic Education Certificate Examination scores in Mathematics on students' Economics achievement in West African Senior School Certificate Examination in Niger State, Nigeria from 2015-2020
- ii. examine the predictive validity index of Basic Education Certificate Examination scores in Mathematics on male students' Economics achievement in West African Senior School Certificate Examination in Niger State, Nigeria from 2015-2020

Hypotheses

H₀₁: Basic Education Certificate Examination scores in Mathematics do not significantly predict students' Economics achievement in West African Senior School Certificate Examination in Niger State, Nigeria from 2015-2020

H₀₂: Basic Education Certificate Examination scores in Mathematics do not significantly predict male students'

Economics achievement in West African Senior School Certificate Examination in Niger State, Nigeria from 2015-2020

2. Methodology

2.1 Research Design

This study adopted an ex post facto research design. The design was considered appropriate because it enabled the researchers to examine the predictive relationship between Basic Education Certificate Examination (BECE) scores in Mathematics and students' achievement in Economics in the West African Senior School Certificate Examination (WASSCE) without manipulating the variables. The study relied on existing examination records of students in selected secondary schools in Niger State, Nigeria, covering the period 2015–2020, to determine the predictive validity of BECE Mathematics scores on WASSCE Economics achievement. The ex post facto design was therefore suitable because the variables had already occurred, and the researchers had no control over their occurrence but sought to establish the extent to which achievement in BECE Mathematics could predict subsequent achievement in WASSCE Economics.

2.2 Population

The population of the study consisted of all secondary school students in Niger State who sat for the Basic Education Certificate Examination (BECE) scores in Mathematics between 2015 and 2017 and their corresponding West African Senior School Certificate Examination (WAEC-SSCE) between 2018 and 2020. The BECE population comprised 23,343 students in 2015, 24,105 students in 2016, and 27,750 students in 2017, giving a total population of 75,198 students. For the WAEC-SSCE, 24,318 students registered in 2018, 23,744 students registered in 2019, and 31,121 students registered in 2020, resulting in a total population of 81,388 students.

2.3 Sample Size and Sample Technique

A stratified sampling technique was used to select 532 students from five public secondary schools in Niger State, Nigeria. The schools were stratified to ensure adequate representation across the selected schools, after which students' examination records were selected proportionately from each stratum. The sample comprised students who sat for the Basic Education Certificate Examination (BECE) in Mathematics and subsequently the West African Senior School Certificate Examination (WASSCE) in Economics between 2015 and 2020. Only students with complete records for both examinations were included in the study to enable the determination of the predictive validity of BECE Mathematics scores on WASSCE Economics achievement.

2.4 Method of Data Collection

2.5 Validity and Reliability of the Instrument

The data used for this study were considered valid and reliable because they were obtained from official examination records maintained by the relevant educational authorities. Specifically, the data consisted of students' Basic Education Certificate Examination (BECE) Mathematics scores and West African Senior School Certificate Examination (WASSCE) Economics results for the period 2015–2020. These examination records were generated and certified by recognized examination bodies through standardized procedures for test development, administration, scoring, and result processing. The credibility of the data was further ensured because the records were obtained from official school and examination archives, which are subject to established quality assurance and verification procedures. Since the study relied exclusively on secondary data from these authenticated sources, no additional validity or reliability testing was conducted by the researchers. Rather, emphasis was placed on ensuring that the data were complete, accurate, relevant to the study objectives, and covered the specified period. Consequently, the data were considered appropriate for determining the predictive validity of

BECE Mathematics scores on students' achievement in WASSCE Economics in Niger State, Nigeria

2.6 Method of Data analysis

The data collected for this study were analyzed using regression analysis. Regression analysis was employed to determine the predictive validity of Basic Education Certificate Examination (BECE) scores in Mathematics on students' achievement in Economics in the West African Senior School Certificate Examination (WASSCE). Regression analysis was considered appropriate because it determines the extent to which the predictor variable (BECE Mathematics scores)

explains or predicts the criterion variable (WASSCE Economics achievement). The hypotheses were tested at the 0.05 level of significance using the Statistical Package for the Social Sciences (SPSS). This approach is commonly used in predictive validity studies involving educational examination scores.

3. Results and Discussion

H₀₁: Basic Education Certificate Examination scores in Mathematics do not significantly predict students' Economics achievement in West African Senior School Certificate Examination in Niger State, Nigeria from 2015-2020.

Table 1: Regression Analysis of BECE Economics Scores in Mathematics as Predictor of WASSCE Economics Achievement (N = 532)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.224	0.050	0.048	8.614

Source: Field Work (2026)

The model summary indicates that the correlation coefficient (R) between BECE Economics scores in Mathematics and WASSCE Economics achievement was 0.224, showing a positive relationship between the two variables. The coefficient of determination ($R^2 =$

0.050) indicates that BECE scores explained 5.0% of the variation in students' WASSCE Economics achievement. The remaining 95.0% of the variation may be attributed to other factors not included in the model.

Table 2: ANOVA for Regression Analysis

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	2036.482	1	2036.482	27.438	0.000
Residual	39356.318	530	74.257		
Total	41392.800	531			

Source: Field Work (2026)

The ANOVA result shows that the regression model was statistically significant, $F(1, 530) = 27.438$, $p < 0.05$. This indicates that BECE scores in Mathematics significantly predict students' achievement in

WASSCE Economics. Therefore, the regression model provides a significant prediction of students' future Economics achievement.

Table 3: Regression Coefficients

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
Constant	45.632	2.145		21.272	0.000
BECE Mathematics Score	0.315	0.060	0.224	5.238	0.000

Source: Field Work (2026)

Regression Equation

$$Y = 45.632 + 0.315X$$

Where:

Y = Students' WASSCE Economics achievement score

X = Students' BECE Mathematics score

The regression coefficient for BECE Mathematics score was $B = 0.315$, indicating that a one-unit increase in BECE Mathematics score results in an estimated 0.315-unit increase in WASSCE Economics achievement. The standardized beta coefficient ($\beta = 0.224$) indicates that BECE scores made a positive contribution to predicting students' WASSCE Economics achievement. The t-value ($t = 5.238$) and significance value ($p = 0.000$) show that BECE Mathematics scores significantly predict students' achievement in WASSCE Economics. Since the significance value (0.000) is less than the 0.05 level of significance, the null hypothesis is rejected. Therefore, Basic Education Certificate Examination scores in Mathematics significantly predict students' Economics achievement in the West African Senior School Certificate Examination in Niger State, Nigeria.

Hypothesis 2: Basic Education Certificate Examination scores in Mathematics do not significantly predict male students' Economics achievement in West African Senior School Certificate Examination in Niger State, Nigeria from 2015-2020

Table 4 Model Summary of Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.268	0.072	0.069	8.421

Source: Field Work (2026)

The model summary indicates that the correlation coefficient (R) between male students' BECE Mathematics scores and their WASSCE Economics achievement was 0.268, showing a positive relationship between BECE performance and subsequent WASSCE achievement in Economics. The coefficient of determination ($R^2 = 0.072$) indicates that BECE Economics scores accounted for 7.2% of the variation in male students' WASSCE Economics achievement, while the remaining 92.8% could be explained by other factors not included in the model.

Table 5: ANOVA for Regression Analysis

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1608.324	1	1608.324	22.692	0.000
Residual	22100.486	312	70.835		
Total	23708.810	313			

Source: Field Work (2026)

The ANOVA result shows that the regression model was statistically significant, $F(1, 312) = 22.692$, $p < 0.05$. This indicates that BECE Mathematics scores significantly predict male students' achievement in

WASSCE Economics. Therefore, BECE performance in Mathematics contributes significantly to explaining differences in male students' WASSCE Economics achievement.

Table 6: Regression Coefficients

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	T	Sig.
Constant	44.985	2.587		17.384	0.000
BECE Mathematics Score	0.354	0.074	0.268	4.764	0.000

Source: Field Work (2026)

Regression Equation

$$Y = 44.985 + 0.354X$$

Where:

Y = Male students' WASSCE Economics achievement score

X = Male students' BECE Mathematics score

The regression coefficient for BECE Mathematics scores was $B = 0.354$, indicating that a one-unit increase in male students' BECE Mathematics scores resulted in an estimated 0.354-unit increase in their WASSCE Economics achievement. The standardized beta coefficient ($\beta = 0.268$) shows that BECE scores in Mathematics made a positive contribution to predicting male students' achievement in WASSCE Economics. The calculated t-value ($t = 4.764$) with a significance value of $p = 0.000$ indicates that BECE Mathematics scores significantly predict male students' WASSCE Economics achievement. Since the significance value (0.000) is less than the 0.05 level of significance, the null hypothesis (H_{02}) is rejected. Therefore, Basic Education Certificate Examination scores in Mathematics significantly predict male students' Economics achievement in the West African Senior School Certificate Examination in Niger State, Nigeria.

3.1 Discussion of Major Findings

The first hypothesis stated that Basic Education Certificate Examination (BECE) scores in Mathematics do not significantly predict students' Economics achievement in the West African Senior School Certificate Examination (WASSCE) in Niger State, Nigeria from 2015-2020. The result of the regression analysis revealed that BECE Economics scores significantly predicted students' achievement in WASSCE Economics. The finding indicated that although BECE scores in Mathematics had a positive relationship with WASSCE Economics achievement, the predictive strength was weak, as BECE scores accounted for only a small proportion of the variation in students' subsequent performance. This implies that students' achievement at the BECE level contributes to their performance at the WASSCE level, but other factors may also influence their achievement. The finding agrees with the study of Katcha, Ojelade and Musa (2026), who reported positive but very weak correlations between BECE Basic Science performance and students' achievement in overall SSCE science subjects, including Physics, Chemistry, and Biology. Their regression analysis further revealed that BECE Basic Science explained only a minimal proportion of the variance in SSCE science achievement, suggesting limited predictive ability. The similarity between both studies indicates that performance at the junior secondary school level provides some indication of

future academic achievement but may not be sufficient alone to determine students' performance at the senior secondary level. The finding also supports Ugwuda and Aboyi (2011), who found that students' JSCE scores had a low but positive correlation with their corresponding SSCE scores. Similarly, Faleye and Afolabi (2016) observed that JSCE results were generally poor predictors of students' SSCE performance, although Mathematics showed a relatively stronger predictive capacity compared with other subjects. These findings suggest that while junior secondary examination results may have some predictive value, the relationship between junior and senior secondary examination outcomes is not always strong. However, the present finding differs from the study of Osadebe (2013), who found a positive and significant relationship between JSCE Mathematics scores and SSCE Mathematics scores in Delta State. It also differs from Onuka, Raji and Onabamiro (2010), who established a significant relationship between students' performance in JSCE and SSCE in Lagos State. The difference may be attributed to variations in subject areas, geographical locations, school characteristics, teaching quality, and other contextual factors affecting students' academic achievement. The weak predictive power observed in this study may be explained by the transition from junior secondary education to senior secondary education, where students encounter more advanced concepts, different instructional methods, and additional academic challenges. Therefore, while BECE Economics performance provides an indication of students' future achievement, it cannot independently determine their success in WASSCE Economics.

The second hypothesis stated that Basic Education Certificate Examination (BECE) scores in Mathematics do not significantly predict male students' Economics achievement in the West African Senior School Certificate Examination (WASSCE) in Niger State, Nigeria from 2015-2020. The regression analysis revealed that BECE scores significantly predicted male students' achievement in WASSCE Economics. However, the proportion of variance explained by BECE scores was relatively small, indicating that

although male students who performed better in BECE Economics tended to achieve higher scores in WASSCE Economics, other factors also contributed to their academic outcomes. This finding agrees with Nwanne (2026) who found that male students recorded a slightly higher average credit pass rate in WASSCE Economics compared with female students, although the difference was not statistically significant. The study reported that male students achieved a 66.71% credit pass rate compared with 64.85% for female students. This suggests that gender may influence achievement patterns to some extent, but the effect may not always be strong enough to produce significant differences. The finding is also consistent with Longjohn and Allwell (2022), who found no significant difference between male and female students' performances in BECE Mathematics and Basic Science. Although male students performed better than females, the observed difference was not statistically significant. This supports the argument that gender alone may not be a strong determinant of academic achievement, as students' performance is influenced by several factors, including instructional quality, learning environment, motivation, and access to educational resources. However, the present finding differs from studies that reported male superiority in academic achievement, particularly in mathematics and science-related subjects. For instance, Ivan (2017), Onibukun (2012) and Bolaji (2011) reported that male students performed better than female students in Mathematics. Similarly, Ogbene and Umoeven (2013) noted that some previous studies have portrayed Mathematics as a masculine subject, resulting in differences in participation and achievement between male and female students. Bruce (2014) further argued that the presence of both male and female students in mixed school settings may influence perceptions of subjects as either masculine or feminine, which can affect students' achievement patterns. The present finding implies that although male students' BECE performance can significantly predict their WASSCE Economics achievement, gender-related factors alone may not sufficiently explain differences in academic outcomes. The result supports the view of Gupta (2016) and Garson (2013), who emphasized that gender represents socially constructed differences

between males and females and that achievement differences may arise from a combination of biological, social, cultural, and educational influences rather than gender alone. The findings of the two hypotheses demonstrate that BECE scores have some predictive value for students' subsequent WASSCE Economics achievement, including among male students. However, the prediction is relatively limited, indicating that other variables such as teaching effectiveness, school environment, students' motivation, socioeconomic background, and learning resources may play important roles in determining students' achievement in Economics at the senior secondary level.

4. Conclusion and Recommendations

Based on the findings of this study, it was concluded that Basic Education Certificate Examination (BECE) scores in Mathematics have a significant but limited predictive ability on students' achievement in Economics in the West African Senior School Certificate Examination (WASSCE) in Niger State, Nigeria. The results revealed that students' performance in BECE Mathematics was positively related to their subsequent achievement in WASSCE Economics, indicating that students who performed better at the junior secondary school level were more likely to achieve better results at the senior secondary school level. However, the proportion of variance explained by BECE scores in Mathematics was relatively small, suggesting that other factors beyond previous academic achievement contribute significantly to students' achievement in Economics.

The study also concluded that BECE scores in Mathematics significantly predict male students' achievement in WASSCE Economics. Although male students' BECE achievement contributed positively to predicting their WASSCE Economics achievement, the predictive strength remained limited. This indicates that while previous examination performance provides useful information about students' future achievement, it cannot independently determine academic success. Factors such as teaching quality, students' motivation,

learning environment, availability of instructional resources, and individual differences may also influence students' performance. Furthermore, the findings suggest that gender does not operate as an independent determinant of academic achievement but may interact with other educational and social factors. Although male students showed some level of predictive relationship between BECE Mathematics and WASSCE Economics achievement, the influence of gender-related factors requires consideration alongside other variables affecting learning outcomes. Therefore, the study concludes that BECE Mathematics results serve as a useful indicator for understanding and predicting students' future achievement in WASSCE Economics, but they should not be considered the sole basis for determining students' academic potential. Continuous improvement in teaching practices, effective monitoring of students' progress and provision of supportive learning environments are necessary to enhance students' achievement in Economics at the senior secondary school level.

Based on the conclusion and findings, the study recommends:

- i. Teachers and school administrators should use BECE Mathematics results as an early indicator for identifying students' strengths and weaknesses in Economics. Appropriate academic support, remedial programmes and effective instructional strategies should be provided to improve students' transition and achievement at the WASSCE level.
- ii. Educational stakeholders should focus on improving other factors that influence students' achievement in Mathematics and Economics, such as teaching quality, availability of instructional materials, students' motivation and the learning environment. Since BECE scores in Mathematics explained only a limited proportion of students' WASSCE achievement in Economics, attention should be given to these additional factors to enhance overall academic achievement.

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