



# Predictive Validity of UTME and Post-UTME Chemistry Scores as Joint Predictors of First-Year Achievement in Chemistry-Based Courses in Enugu State Public Universities

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## ABSTRACT

This study investigated the predictive validity of UTME and Post-UTME Chemistry scores as joint predictors of first-year achievement in chemistry-based courses in Enugu State public universities. A predictive correlational survey design was adopted. The population was 2,396 students admitted in 2007/2008 and 2008/2009 academic sessions into Agricultural Economics and Biochemistry in University of Nigeria, Nsukka (Federal) and Enugu State University of Science and Technology (State). Purposive sampling was used to select 349 students with complete records (UNN = 190, ESUT = 159). A broadsheet proforma was used for data collection. Data were analyzed using Pearson correlation and Multiple Linear Regression at 0.05 alpha. Results showed low to moderate inter-correlation between UTME and Post-UTME ( $r = 0.01 - 0.48$ ) indicating no serious multicollinearity. For Federal university, UTME and Post-UTME jointly predicted first-year achievement significantly; Agricultural Economics: Multiple  $r = 0.58$ ,  $R^2 = 0.34$ ,  $F = 35.42$ ,  $p < .001$ ; Biochemistry:  $r = 0.51$ ,  $R^2 = 0.26$ ,  $p < .001$ . For State university, joint prediction was lower; Agricultural Economics:  $r = 0.41$ ,  $R^2 = 0.17$ ,  $p = .001$ ; Biochemistry:  $r = 0.38$ ,  $R^2 = 0.14$ ,  $p = .055$ . Combined model explained 27% variance,  $F(2, 346) = 64.18$ ,  $p < .001$ . Post-UTME had higher standardized Beta ( $\beta = 0.40$ ,  $p < .001$ ) than UTME ( $\beta = 0.17$ ,  $p = .003$ ). It was concluded that UTME and Post-UTME Chemistry have moderate predictive validity in Federal but low in State university, suggesting institutional differences in Post-UTME standard. Recommendation was made to retain Post-UTME while standardizing its conduct in State universities.

**Keywords:** Predictive validity, UTME, Post-UTME, First-year achievement, Multiple regression

## 1.0 INTRODUCTION

The Joint Admissions and Matriculation Board (JAMB) was established in 1978 to harmonize admissions into Nigerian tertiary institutions through a centralized examination (Yakubu *et al.*, 2025). Prior to its establishment, individual universities conducted separate entrance examinations and admitted students based on their own criteria. JAMB replaced this decentralized system with a unified framework for admission (Bello & Jingi, 2019; Olaniyan, 2025). Since then, JAMB has remained responsible for admissions into universities, polytechnics and colleges of education through the Unified Tertiary Matriculation Examination (UTME). However, its centralized structure has continued to generate concerns about limited institutional autonomy and inadequate responsiveness to access challenges (Lawal *et al.*, 2026; Ogunyemi & Barksdale, 2025; Yakubu *et al.*, 2025).

Recent evidence from vice-chancellors' perspectives confirms that the centralized admission system still constrains universities and restricts their autonomy, echoing earlier calls for greater institutional control over admissions (Ogunyemi & Barksdale, 2025). Declining public confidence in centralized entrance examinations, driven by repeated cases of question leakages, result cancellations and widespread examination malpractice, further strengthened the

demand for JAMB to serve mainly as a coordinating body while allowing universities to of applicants (Ayoad & Farayola, 2020). This demand is supported by evidence that most students engage in various forms of malpractice during JAMB, whereas such practices are difficult to perpetrate in Post-UTME screening, which often accounts for their low scores in the latter examination (Sheyin *et al.*, 2021).

Concerns over corruption and eroding confidence in JAMB, coupled with pressure for greater institutional control, prompted the Federal Government to retain JAMB as the central examining body while authorizing universities to conduct supplementary screening before admission (Lawal *et al.*, 2026; Yakubu *et al.*, 2025). The Post-UTME is a university-based screening exercise for candidates who have met the JAMB cut-off mark, whose names and scores are forwarded to their institutions of choice for further assessment, serving as a quality control mechanism to confirm candidates' actual abilities match their UTME scores (Akindele, 2024; Raji, 2021). The Post-UTME policy was introduced in 2005 by the Federal Government as a directive through the then Minister of Education, Chinwe Obaji, mandating tertiary institutions to conduct further screening of candidates after the UME/UTME before granting final admission



(Akindele). Its primary rationale was to cross-validate UTME scores, ensure that only qualified candidates were admitted, and address concerns that some UME results were inflated by examination malpractice (Adeleye, 2026; Raji, 2021).

The need to verify JAMB scores raises the issue of validity. Validity refers to the extent to which a test measures what it purports to measure (Ohiri & Nnennaya, 2024). A critical aspect is predictive validity, which is the degree to which a test forecasts future performance. Since candidates now write both UTME and Post-UTME, it becomes necessary to examine how well both scores, jointly and individually, predict first-year academic achievement.

Current evidence in Nigeria indicates that using UTME alone or Post-UTME alone yields inconsistent results, and the critical gap is whether combining both predicts better than either in isolation. Findings from studies that employed simple correlation or single-predictor regression are mixed. In Akwa Ibom, Cross River and Daura, UTME significantly predicted CGPA (Dan *et al.*, 2023; Olutola *et al.*, 2023), while studies at Federal University of Lafia and reviews of science programmes found weak or no relationship between UTME and first-year CGPA (Kwon-Ndung *et al.*, 2023; Raji, 2021). Similarly, Post-UTME as a single predictor shows limited strength. Tai Solarin University of Education reported a significant but small correlation of  $r = 0.245$ , while data from Ebonyi State on mathematics indicated positive correlations for both UTME and Post-UTME but with little explained variance (Akindele, 2024; Ituma *et al.*, 2023). These variations suggest that single predictors are context-dependent, susceptible to measurement error, and insufficient to capture the multiple factors that influence later achievement (Raji, 2021).

Methodologically, most recent studies rely on bivariate approaches. For instance, the Federal University of Lafia study used only correlation, the Ebonyi study used Pearson  $r$  and ANOVA, the Tai Solarin study used PPMC and t-test, Akwa Ibom and Cross River used simple linear regression where UTME explained only 5.8% of the variance ( $R = 0.240$ ,  $R^2 = 0.058$ ), and the 2018 UTME case study used a single predictor only (Kwon-Ndung *et al.*, 2023; Ituma *et al.*, 2023; Dan *et al.*, 2023; Odukoya *et al.*, 2018). What remains lacking is multivariate evidence that reports full diagnostic indices. Multiple regression is more appropriate because admission is inherently multivariate. Universities already utilize several entry indicators, and the practical question is what they contribute jointly and individually. At Bauchi State University, SSCE and UTME were modelled together using multiple linear regression, and the authors concluded that a joint model was more suitable than bivariate correlation alone, even though both predictors had

weak influence (Muhammad & Isaac, 2022). At Delta State University, a two-predictor regression showed that one entry variable could be non-significant while the other remained important, demonstrating why joint estimation is needed to separate overlapping effects (Ezimadu *et al.*, 2024). Earlier work also argued that O'Level and UTME alone are not sufficient, reinforcing the need for models that test predictors simultaneously (Muhammad & Isaac, 2022). Therefore, the unresolved issue is not whether a single score correlates with CGPA, but whether a joint regression framework provides a more valid and policy-relevant basis for admission decisions.

This study is anchored on two theories. Classical Test Theory posits that an observed examination score reflects true ability plus unsystematic measurement error (Kwon-Ndung *et al.*, 2023; Niessen *et al.*, 2016). Standardized tests often suffer from administrative lapses and construct-irrelevant variance that weaken bivariate relationships (Niessen *et al.*, 2016). Using two independent testing instruments helps to aggregate true score variance and balance out test-specific error (Ojo *et al.*, 2026; Egberha & Osarumwense, 2019). Predictive Validity Theory assesses how accurately a predictor forecasts performance on a later criterion, usually first-year GPA (Kwon-Ndung *et al.*, 2023; Ojo *et al.*, 2026). When more than one selection instrument is evaluated, the focus shifts to incremental validity, that is, whether combining predictors increases the explained criterion variance beyond what either explains alone, and what unique contribution each makes as indicated by standardized Beta weights (Jaehn *et al.*, 2025).

Institutional differences between federal and state universities also influence how screening is standardized and how valid it becomes (Mohammed, 2023). The Post-UTME was introduced nationally as a quality assurance intervention to address cases of disparity between the candidates' high JAMB scores and their performance in university-based assessments, and to curb irregularities associated with the UTME (Akindele, 2024; Raji, 2021). However, its implementation differs considerably, with Federal universities having more uniform administrative structures, than state universities with varying local screening policies. These differences affect validity because varied modes create measurement inconsistency, and differences in administrative strength, accounting for a large proportion of operational variance in ensuring quality control in admission (Mohammed, 2026). Consequently, screening methods vary across institutions, as universities adopt diverse approaches including aptitude tests, oral interviews or written examinations (Akindele, 2024; Raji, 2021). Such inconsistency introduces construct-irrelevant variance that weakens the link between entry scores and CGPA (Mohammed,



2023). Given these management differences, Post-UTME scores cannot be assumed to have the same predictive strength in federal and state universities.

### 1.1 Statement of the Problem

Despite extensive literature on admission validity in Nigeria, a clear methodological gap persists. Recent studies from 2018 to 2024 are dominated by Pearson correlation and average-style summaries, but lack the full joint-predictor diagnostics required to support admission validity claims, namely Multiple R,  $R^2$  for the full model, standardized Beta weights for unique contribution, and multicollinearity checks.

This limitation matters because a single study can report a significant Pearson  $r$  yet explain little variance in CGPA, while another can show weak or inconsistent relationships across settings. For instance, Akwa Ibom and Cross River studies that used simple linear regression reported that UTME explained only 5.8% of variance ( $R^2 = 0.058$ ), whereas bivariate correlations in other contexts were significant but small. Such single-predictor approaches are prone to measurement error and cannot separate overlapping effects.

Because universities already use multiple entry indicators in practice, a multiple regression framework is needed to test combined and independent predictive power more defensibly. In short, previous studies examined UTME or Post-UTME one variable at a time or with limited statistics, rather than evaluating them as a combined admission system.

The problem, therefore, is to what extent do UTME and Post-UTME Chemistry scores jointly predict first-year achievement in Agricultural Economics and Biochemistry when their intercorrelation is controlled, and does the predictive strength differ between federal and state public universities in Enugu State.

### 1.2 Purpose of the Study

The purpose of this study is to determine predictive validity of UTME and Post-UTME Chemistry scores as joint predictors of first year achievement in chemistry-based courses in Enugu State public universities.

Specifically, the study seeks to:

- Determine the extent to which UTME and Post-UTME Chemistry jointly predict first year achievement.
- Determine relative contribution of each predictor using Beta weights.
- Determine combined explanatory power using Multiple R and  $R^2$  and institutional difference.

### 1.3 Research Questions

- What are Multiple R and  $R^2$  of UTME and Post-UTME as joint predictors of first year achievement in Agricultural Economics and Biochemistry?
- What is relative contribution of UTME and Post-UTME scores as measured by standardized Beta weights?
- Is joint prediction significantly different between federal and state universities?

### 1.4 Hypotheses

H01: UTME and Post-UTME scores do not jointly and significantly predict first year achievement of students.

H02: The standardized Beta weights of UTME and Post-UTME scores are not statistically significant in predicting first year achievement.

### 2.0 METHOD

The study adopted a predictive correlational survey design to examine associations among variables and to determine how predictor variables explain variation in a criterion variable through multiple regression analysis" (Kulviwat, 2023).

The study was carried out in public universities in Enugu State, namely University of Nigeria, Nsukka and Enugu State University of Science and Technology. Archival records for 2007/2008 and 2008/2009 academic sessions were used because those sessions had complete and accessible data on UTME, Post-UTME and first-year results after approvals from DVC Academics and Registrars, and because they fall within the early period of Post-UTME introduction in Nigeria, making them relevant for predictive validity analysis.

The population of the study was 2,396 students admitted in 2007/2008 and 2008/2009 academic sessions through UTME and Post-UTME into chemistry-based courses where Chemistry is a prerequisite. A sample of 349 students with complete records was used for analysis. Purposive sampling was adopted because only students with complete data across UTME Chemistry, Post-UTME Chemistry and First-Year scores could be retained for joint regression analysis. The sampling procedure involved purposive selection of the two universities, purposive selection of two chemistry-based departments with accessible records, and purposive selection of records with complete scores across the three variables.

The instrument for data collection was a broadsheet proforma containing students' UTME Chemistry scores, Post-UTME Chemistry scores and First-Year achievement scores in chemistry-based courses. The data were collected from departmental examination records with written permission from the Registrars of both universities through the Heads of Departments and Examination Officers. Data were analyzed using

Multiple Linear Regression with UTME and Post-UTME scores as joint predictors and First-Year score as criterion. Statistics reported were Pearson  $r$ , Multiple  $R$ ,  $R$  squared, Adjusted  $R$  squared, Unstandardized  $B$ , Standardized Beta,  $t$ -value,  $p$ -value

and  $F$ -value. Multicollinearity was checked using inter-correlation between UTME and Post-UTME scores. Analysis was conducted at 0.05 level of significance using SPSS version

### 3.0 RESULTS

The results are presented according to research questions and hypotheses.

Table 1: Mean and Standard Deviation of UTME Chemistry, Post-UTME Chemistry and First Year Scores by Department and University Type (N = 349)

| Dept        | Univ Type     | N   | UTME Mean | UTME SD | Post-UTME Mean | Post-UTME SD | 1 <sup>ST</sup> YR Mean | 1 <sup>ST</sup> YR SD |
|-------------|---------------|-----|-----------|---------|----------------|--------------|-------------------------|-----------------------|
| Agric Econs | Federal (UNN) | 142 | 54.12     | 9.34    | 50.18          | 10.92        | 56.23                   | 10.11                 |
| Agric Econs | State (ESUT)  | 98  | 50.87     | 10.21   | 47.05          | 11.45        | 52.44                   | 9.87                  |
| Bio/ Chem   | Federal UNN   | 68  | 53.45     | 9.02    | 49.62          | 10.78        | 55.01                   | 11.02                 |
| Bio/Chem    | State (ESUT)  | 41  | 49.31     | 10.56   | 45.89          | 12.13        | 51.18                   | 10.34                 |
| Combined    | Both          | 349 | 52.41     | 9.87    | 48.63          | 11.24        | 54.12                   | 10.56                 |

Table 1 shows descriptive statistics of 349 complete cases. Federal University (UNN) recorded higher means in UTME, Post-UTME and First Year than State University (ESUT) across both departments. Agric Economics Federal had highest first year mean (56.23, SD=10.11) while Biochemistry State had lowest (51.18,

SD=10.34). Standard deviations are homogeneous, indicating suitability for multiple regression analysis.

**Research Question 1:** What are Multiple  $R$  and  $R^2$  of UTME and Post-UTME as joint predictors of first year achievement?

Table 2: Pearson Correlation Between Predictors and Criterion

| Variables           | R with First Year | Interpretation       |
|---------------------|-------------------|----------------------|
| UTME Chemistry      | 0.32              | Weak Positive        |
| Post-UTME-Chemistry | 0.47              | Moderate Positive    |
| UTME vs Post-UTME   | 0.38              | No Multicollinearity |

Note.  $r$  = Pearson correlation coefficient.

Table 2 shows bivariate correlations. Post-UTME chemistry had higher correlation with first year ( $r=0.47$ ) than UTME ( $r=0.32$ ). Inter-predictor correlation of 0.38 is below 0.80 threshold, indicating no

multicollinearity problem and both predictors can jointly enter regression.

Table 3: Multiple  $R$  and  $R^2$  of UTME and Post-UTME as Joint Predictors of First-Year Achievement

| Department   | Univ Type     | N   | Multiple R | $R^2$ | Adj $R^2$ | %Variance | F     | P-Value |
|--------------|---------------|-----|------------|-------|-----------|-----------|-------|---------|
| Agric Econs  | Federal (UNN) | 142 | 0.58       | 0.34  | 0.33      | 34        | 35.42 | <.001   |
| Agric Econs  | State (ESUT)  | 98  | 0.41       | 0.17  | 0.15      | 17        | 9.68  | .001    |
| Biochemistry | Federal UNN   | 68  | 0.51       | 0.26  | 0.24      | 26        | 11.39 | <.001   |
| Biochemistry | State (ESUT)  | 41  | 0.38       | 0.14  | 0.10      | 14        | 3.15  | .055    |
| Combined     | Both          | 349 | 0.52       | 0.27  | 0.27      | 27        | 64.18 | <.001   |

Note. N= Sample size; Adj  $R^2$ = adjusted R-square; % Variance=Percentage of variance explained by the model.

Table 3 answers Research Questions 1 and 3. Joint model increased predictive power over single predictor.

Combined Multiple  $R=0.52$  indicates moderate positive joint relationship, with 27% variance explained. Agric Economics Federal had highest joint prediction (34%), while Biochemistry State had lowest

(14% and not significant). Federal universities ( $R^2=0.31$  average) showed higher joint predictive validity than State ( $R^2=0.16$  average), supporting Research Question 3.

**Research Question 2:** What is relative contribution of UTME and Post-UTME as measured by Beta?

**Table 4: Standardized Beta Weights Showing Relative Contribution of Predictors (Combined N = 349)**

| Predictor       | B     | Std Error | Beta | t    | P-Value | VIF  | Contribution |
|-----------------|-------|-----------|------|------|---------|------|--------------|
| Constant        | 18.42 | 3.21      | -    | 5.74 | <.001   | -    | -            |
| UTME Chemistry  | 0.18  | 0.06      | 0.17 | 3.02 | .003    | 1.18 | Low          |
| PUTME Chemistry | 0.38  | 0.05      | 0.40 | 7.12 | <.001   | 1.18 | High         |

**Note.** B = unstandardized coefficient; Beta = standardized coefficient. Contribution reflects relative magnitude of effect based on standardized beta weights.

Table 4 shows relative contribution. Both predictors made significant unique contributions, but Post-UTME (Beta=0.40,  $p<0.001$ ) contributed more than double UTME (Beta=0.17,  $p=0.003$ ). VIF of 1.18 confirms no multicollinearity. This indicates Post-UTME is a

stronger independent predictor of first year achievement when both are entered jointly, answering Research Question 2.

**Research Question 3 and Hypotheses:** Is joint prediction different and significant?

Table 5:

**Test of H01 and H02 - Significance of Joint Model and Beta Weights**

| Hypotheses                 | Test       | Value | df    | p     | Decision                         |
|----------------------------|------------|-------|-------|-------|----------------------------------|
| H01 No joint prediction    | F Combined | 64.18 | 2,346 | <.001 | Reject H01                       |
|                            |            |       |       | 1     | Significant                      |
| H02 UTME Beta not sig      | t          | 3.02  | 346   | .003  | Reject H02 UTME Significant      |
| H02 Post-UTME Beta not sig | t          | 7.12  | 346   | <.001 | Reject H02 Post-UTME Significant |
|                            |            |       |       | 1     | UTME Significant                 |

**Note.** UTME = Unified Tertiary Matriculation Examination; Post-UTME/PUTME = Post-Unified Tertiary Matriculation Examination, p values are two tailed. Decision is based on  $\alpha = .05$

Table 5 tests hypotheses at 0.05 level. H01 is rejected because  $F(2,346)=64.18$ ,  $p<0.001$ , indicating UTME and Post-UTME jointly predict significantly. H02 is rejected for both predictors because their Beta weights are significant. Therefore, both UTME and Post-UTME are significant joint predictors, with Post-UTME having higher relative weight.

#### 4.0 DISCUSSION

The finding on first year mean achievement shows that students in Federal university, particularly Agricultural Economics with mean of 56.23, performed higher than those in State university, particularly Biochemistry with mean of 51.18. This difference reflects institutional disparities earlier noted by Mohammed (2026) where federal universities operate with more standardized administrative framework, stable academic calendar and higher cut-off marks, while state universities contend with varied screening policies and resource deficits. The higher mean in Agricultural Economics may also be because first year courses in that department are less mathematically intensive than Biochemistry, allowing Chemistry entry knowledge to transfer more directly.

On the relationship between entry scores and first year achievement, Post-UTME had higher correlation with first year ( $r=0.47$ ) than UTME ( $r=0.32$ ). This supports Predictive Validity Theory as explained by Kwon-Ndung *et al.* (2023) and Ojo *et al.* (2026) that a predictor set by the same institution and administered closer to the criterion should predict better. It agrees with Dan *et al.* (2023) and Olutola *et al.* (2023) who reported significant prediction of CGPA by UTME in Akwa Ibom, Cross River and Daura, but it contradicts

Kwon-Ndung *et al.* (2023) and Raji (2021) who found weak or no meaningful relationship in Federal University of Lafia and some science programmes when single predictor was used. The contradiction is explained by context and measurement. Our study used Chemistry-specific scores rather than aggregate UTME, and programme matters. The inter-predictor correlation of 0.38 is low and shows no multicollinearity. This is important because it justifies the multiple regression approach advocated by Muhammad and Isaac (2022) in Bauchi State and Ezimadu *et al.* (2024) in Delta State. According to Classical Test Theory, observed score contains true ability plus random error (Niessen *et al.*, 2016). Using two independent instruments allows true score variance to aggregate while random error balances out (Ojo *et al.*, 2026; Egberha & Osarumwense, 2019). The 0.38 correlation means UTME and Post-UTME share only about 14% common variance, so each adds unique information.

The joint prediction gave Multiple R of 0.52 and R squared of 0.27 with F of 64.18 significant at p less than .001. This means UTME and Post-UTME together explained 27 percent of first year achievement, leaving 73 percent to other factors like study habits, lecturer quality, school environment and family support. The 27 percent is higher than 5.8 percent reported by Dan *et al.* (2023) in Akwa Ibom and Cross River where simple linear regression of UTME alone was used, and higher than the small correlation of  $r$  equals 0.245 reported in Akindele (2024). It is also higher than Ebonyi mathematics finding where variance explained was limited (Ituma *et al.*, 2023). This result highlights the methodological limitation of prior admissions-validity studies that relied mainly on bivariate



association methods, because the Federal University of Lafia study used correlation analysis with UTME as the predictor and first-year CGPA as the criterion, while the Ebonyi study answered its research questions primarily with Pearson product-moment correlations on UTME and Post-UTME scores” (Kwon-Ndung *et al.*, 2023; Ituma *et al.*, 2023).

“By contrast, incremental-validity research evaluates whether adding a second predictor increases explained criterion variance beyond the first, typically through regression-based designs rather than bivariate tests alone” (Sackett *et al.*, 2017; Jaehn *et al.*, 2025).

Accordingly, the present 27% explained variance is consistent with the broader incremental-validity principle that combining predictors can improve prediction beyond either single measure alone (2018; Jaehn *et al.*, 2025; Sackett *et al.*, 2017).

When the joint prediction was examined by programme and university type, Agricultural Economics in Federal university had the highest prediction of 34 percent while Biochemistry in State university had the lowest of 14 percent which was not significant. This variation supports the argument by Mohammed (2023, 2026) that Post-UTME implementation varies sharply across jurisdictions, alternating between aptitude tests, oral interviews and pen-and-paper examinations, and that unequal administrative capacity explains over 95 percent of operational variance in quality assurance. Such inconsistent modalities introduce construct-irrelevant variance that attenuates correlation between entry scores and CGPA. The non-significant result in State Biochemistry may also be due to small sample size of 41 and possible marking variation. Generally, federal universities predicted better than state universities, indicating that more standardized screening improves predictive validity.

On relative contribution, Post-UTME had Beta of 0.40 significant at  $p$  less than .001 while UTME had Beta of 0.17 significant at  $p$  equals .003. This shows Post-UTME contributed more than double the unique contribution of UTME when their overlap was controlled. This directly addresses the gap that most studies examined UTME or Post-UTME one variable at a time or with limited statistics (Kwon-Ndung *et al.*, 2023; Ituma *et al.*, 2023; Odukoya *et al.*, 2018) rather than testing Beta weights. The finding aligns with prior evidence that Post-UTME was intended to curb inflated UTME/UME scores associated with examination malpractice, and with Delta State results showing that predictors do not contribute equally when estimated jointly (Ezimadu *et al.*, 2024). It also supports earlier conclusion that O'Level and UTME alone were not enough and that joint estimation is needed to separate overlapping effects (Muhammad &

Isaac, 2022). Both null hypotheses were therefore rejected. Overall, the results support Classical Test Theory that aggregating two independent measures improves true score estimation and Predictive Validity Theory that multiple regression provides more defensible and policy-relevant admission validity than bivariate correlation.

## 5.0 CONCLUSION

The study has shown that both UTME and Post-UTME Chemistry scores are significant predictors of first year academic achievement of Agricultural Economics and Biochemistry students in Enugu State using archival data of 2007/2008 and 2008/2009 sessions obtained through approval from DVC Academics and Registrars. However, Post-UTME is the stronger predictor with higher correlation and higher Beta weight. Together, they explain about twenty seven percent of first year performance, which is significant but leaves substantial portion to other factors. The predictive power is not uniform across programmes and institutions. It is higher in Federal university than State university and higher in Agricultural Economics than Biochemistry, reflecting differences in screening standardization, administrative capacity and course demands as discussed by Mohammed (2026). The study therefore confirms that admission validity is better understood through joint multiple regression framework with diagnostics of Multiple R, R squared and Beta weights, rather than single predictor correlation alone as dominant in recent literature.

## 6.0 RECOMMENDATIONS

Based on the findings, Post-UTME should be retained as part of admission screening in Nigerian universities because it adds incremental validity beyond UTME and shows stronger unique contribution. Admission should not be based on UTME alone. A weighted composite of UTME and Post-UTME should be used with higher weight assigned to Post-UTME given its Beta of 0.40 compared to 0.17 for UTME. State universities should review and standardize their Post-UTME items and administration to improve predictive quality and reduce construct-irrelevant variance that attenuates validity. This is particularly important for Biochemistry where prediction was low and non-significant in State university. Finally, future studies should use more recent archival data and include other predictors such as O'Level grades, study habits and gender to increase explained variance beyond twenty seven percent and to test whether the pattern observed in 2007/2008 and 2008/2009 still holds for current admission cohorts.

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