

## TVET, STEM Funding and Innovative Advancement in Nigeria Higher Institutions of Learning: An Empirical Analysis.

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**Introduction:** The study examines the effect of TVET (Technical and Vocational Education and Training), STEM (Science, Technology, Engineering, and Mathematics) funding, and innovative advancement in Nigeria's higher institutions. The goal is to understand the impact of TVET and STEM financing on developing Nigeria's higher education institutions' innovative drive and to identify new progress trends in this area. The study uses Everett Rogers' innovation diffusion theory to model the innovative advancements within Nigeria's higher educational sector.

**Materials and methods/Methodology:** The study adopts an Ex Post Facto design justified by using secondary data consisting of preexisting information. The data spans 2005 to 2024 and includes annual observations of TVET and STEM educational budget funding sourced from the Federal Ministry of Finance websites and the National Planning Commission. EViews 10 statistical software is employed for both descriptive and inferential statistical analysis. The analysis includes various tests, including the Jarque-Bera (JB) statistic, to determine the normal distribution of the variables under examination.

**Results and discussion:** The analysis reveals that the Jarque-Bera statistic is 11.15479, indicating that the data is generally distributed among the variables examined, as it is greater than 5%. The overall probability value of 0.003782 indicates that the descriptive modelling of TVET, STEM funding, and educational growth advancement in Nigeria's higher institutions is statistically significant. Additionally, the trend analysis shows steady growth in TVET and STEM funding from 2008 to 2024, suggesting positive progress in Nigeria's higher education institutions. The corresponding p-values for the hypotheses are sig. (0.0788, 0.0774, 0.0903, 0.0001), which led to the acceptance of the alternative hypothesis (H1), confirming a significant impact on TVET, STEM, and educational funding in Nigeria's higher institutions.

**Conclusions:** The study concludes that TVET and STEM funding significantly contribute to the progress and development of Nigeria's higher learning institutions' innovative drive. The findings suggest no issues with heteroskedasticity in the reliability of the empirical data. As a result, it is recommended that further TVET and STEM funding should continue to promote educational, innovative advancements and excel within Nigeria's higher education institutions. These efforts should align with the Nigerian populace's expectations, supporting institutional and national development.

**Keywords:** TVET, STEM, Funding, Innovation, Nigeria Higher Education