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Timisoara Journal of Economics and Business TJE&B

GREENING THROUGH ECONOMICS: DOES ENVIRONMENTAL ECONOMICS ENHANCE PRO-ENVIRONMENTAL BEHAVIOUR?

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DOI: 10.2478/ tjeb-2025-0002

Environmental economics, a subfield of economics, is one of the frameworks developed for understanding and addressing environmental issues. However, the extent to which exposure to such coursework influences students' real-world environmental behaviour remains underexplored. This study, therefore, sought to assess whether taking an environmental economics translates into tangible pro-environmental behaviours (PEBs) among students, using Kwara State University as a case study. Drawing on Knowledge-Attitude-Behaviour Theory and using a survey-based approach, data were collected from students of economics within the university. A stratified random sample of 202 students of economics was selected—93 in parts 3 and 4 (who had taken environmental economics) and 109 in parts 1and 2 (who had not taken environmental economics). Data were collected through a structured questionnaire and analyzed using descriptive statistics, Ordinary Least Squares regression model, and multivariate logit model. The findings reveal that taking environmental economics significantly influenced PEBs and that students exposed to environmental economics engaged more in energy conservation, proper waste disposal, reusing and environmental advocacy than other PEBs. The study also found that socioeconomic factors had a moderating effect on the relationship. The study underscores the importance of integrating environmental economics into economics curricula to promote sustainability. It also highlights the need for institutional support, such as improved access to recycling facilities and campus-wide environmental campaigns, to enhance PEBs.

Keywords: **Environmental education, pro-environmental behaviour, university students, sustainability, environmental knowledge, Kwara State University.**

JEL Classification: **Q50, Q56, I21, I23**

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1. Introduction

The increasing threat of climate change, pollution, resource depletion and other forms of environmental degradation underscores the need for sustainable behaviour at both individual and societal levels. Environmental economics is one of the frameworks for understanding and addressing these environmental issues. Environmental economics, a sub-discipline of economics that addresses the economic aspects of environmental issues by integrating economic principles with environmental management (Pearce, 2002). Courses in environmental economics provide students with the necessary knowledge and analytical skills to understand the interplay between economic activities and environmental health, potentially influencing their pro-environmental behaviours (PEBs). Environmental economics teaches students about sustainable resource management, pollution control policies, and economic incentives for environmental protection. These concepts are crucial in shaping attitudes towards environmental responsibility. By educating students on the economic impacts of environmental policies and sustainable practices, environmental economics aims to cultivate a generation that values environmental stewardship.

However, the extent to which exposure to such coursework influences students' real-world environmental behaviour remains underexplored. Despite the growing number of academic departments offering environmental economics as a course, there is limited empirical evidence on the extent to which taking environmental economics influences the PEBs of students of economics who are expected to play a pivotal role in shaping sustainable economic policies in the future. Although many studies have examined the relationship between education and PEB, suggesting that knowledge and awareness significantly influence individuals' environmental actions (Kollmuss & Agyeman, 2002), little or no research has specifically examined the impact of taking environmental economics on the PEBs of students. Hence, it is unclear whether the theoretical knowledge gained from environmental economics translates into practical PEBs.

This study, therefore, sought to fill this gap by assessing the impact of taking environmental economics on PEBs of students. Specifically, the research sought to (1) assess the level of PEBs of students of environmental economics, (2) investigate whether students who take environmental economics exhibit greater engagement in PEBs compared to those who do not, (3) identify the factors that moderate the relationship between exposure to environmental economics and PEB, and (4) identify the specific PEBs influenced by environmental economics. Understanding this relationship is crucial for designing effective curricula that promote environmental sustainability among future economists.

This study holds significant implications for educators, academic departments, policymakers, and curriculum developers. By examining the role of environmental economics education in fostering PEBs, the findings contribute empirically to the literature on the effectiveness of environmental education in fostering environmentally responsible behaviour. It also contributes to the ongoing discourse on environmental sustainability in higher education, and serves as a reference for

future research. The findings can guide curriculum design, ensuring that educational programmes effectively equip students with the knowledge and motivation to address environmental challenges. Furthermore, understanding the educational factors that promote PEBs can aid in developing strategies to bridge the gap between environmental knowledge and action, contributing to broader sustainability goals.

In order to gain an insight into the role of environmental education in shaping PEBs, pre-existing empirical studies are reviewed in Section 2. The theoretical framework of PEBs together with methodology adopted in this research is presented in Section 3. The fourth section presents the results and discusses them in relation to previous literature. The conclusions of the study are presented in Section 4.

2. Review of Literature

Environmental economics is a subfield of economics that emerged in response to growing concerns about the environmental consequences of economic activities. Spurred by the increasing visibility of environmental issues, its development dates back to the 1960s (Pearce, 2002)). Environmental economics has expanded to address a wide range of issues, including climate change, waste and pollution management, biodiversity and conservation, and sustainable development. The introduction of market-based instruments, such as cap-and-trade systems, reflects the field's evolution towards integrating economic incentives with environmental goals. The field continues to evolve with a growing emphasis on interdisciplinary approaches that combine economic analysis with insights from ecology, sociology, and other disciplines.

Pro-environmental behaviours (PEBs) consist of all individual actions taken consciously and altruistically to protect the environment either by taking measures to reduce the negative environmental impact of the actions or by taking steps to improve the environment (Kollmuss and Agyeman, 2002; Steg & Vlek, 2009; Onel and Mukherjee, 2016). Such behaviours include actions such as energy conservation, recycling, waste reduction, buying eco-friendly products, using public transportation, carpooling to reduce greenhouse gas emissions, and environmental advocacy. These behaviours are a combination of self-interest and concern for others, subsequent generations, other living beings or the whole ecosystem (Bamberg & Moser, 2007). PEBs have been described by several terms, which include ecological behaviour, environmentally responsible behaviours, environmentally significant behaviours, responsible environmental behaviours, conservation behaviours.

Several factors have been identified as affecting PEBs, among which are external factors (institutional, social, economic and cultural), internal factors (motivation, environmental knowledge, awareness, values, attitudes, emotions, locus of control, responsibility and priority) and demographic factors (gender, age, and education) (Kollmuss & Agyeman, 2002). Based on these factors, several theories have been propounded, among which the most common are theory of planned behaviour, value-belief-norm theory, and knowledge-attitude-behaviour theory.

Theory of planned behaviour posits that an individual's behaviour is directly influenced by their intention to perform the behaviour, which in turn is influenced by attitudes, subjective norms, and perceived behavioural control (Ajzen (1991). Built on value theory and norm activation theory, value-belief-norm (VBN) theory explains how individuals' values, beliefs, and personal norms influence their PEBs (Stern et al., 1999; Stern, 2000). It focuses on understanding how values and beliefs translate into environmentally friendly behaviours. If an individual values environmental protection and believes that environmental degradation (e.g., climate change) is real and dangerous and that immediate action is needed, they may feel a personal obligation to engage in PEBs. The belief activates a personal norm which leads to PEBs. In the VBN model, biospheric values (concern for the environment and nature) and altruistic values (concern for others) are particularly important in shaping environmental behaviour. The knowledge-attitude-behaviour theory posits that knowledge influences attitudes, and attitudes, in turn, influence behaviour. In other words, individuals who acquire more knowledge about environmental issues are expected to develop more positive attitudes towards the environment, which should lead to increased PEBs. It holds that environmental education increases knowledge, which leads to positive attitudes, and in turn, influences PEBs. Environmental education theory focuses on how education can promote awareness, attitudes, and skills for sustainable living (Intergovernmental Conference on Environmental Education, 1978; Hines, 1972).

Among the factors identified by these various theories, environmental education seems to be an overarching factor influencing PEBs. Environmental education refers to a learning process that increases knowledge and awareness about the environment and associated challenges; develops the necessary skills and expertise to address these challenges; and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action (Santhakumar, 2024). The relationship between environmental education and PEBs has been a topic of interest in the field of environmental science. Several studies have explored this relationship, highlighting the impact of educational interventions on individuals' environmentally conscious actions.

To start with, the United Nations Environment Programme's (1978) report highlighted the role of environmental education in fostering awareness and responsibility towards environmental conservation. It emphasized the importance of integrating environmental topics into formal education curricula. Consequently, several studies have confirmed that environmental education influences PEBs (Stern, 2000; Kollmuss & Agyeman, 2002; Wang et al., 2022; Almencion et al., 2024; Rahmawati et al., 2024). However, Kollmuss and Agyeman (2002) emphasized the challenges of translating knowledge into action due to factors such as convenience, social influences, economic constraints, and access to sustainable alternatives. While knowledge about environmental issues increases, factors like habits, convenience, and socio-economic barriers can prevent individuals from acting in a pro-environmental manner. The study identified the need for environmental education that integrates knowledge with practical, actionable steps for behaviour change. Similarly, Chawla (1998) found that while environmental education is effective in raising awareness, its impact on actual behaviour change is contingent upon the integration of behavioural strategies within the educational framework.

In the Nigerian context, studies such as Erhabor and Don (2016) have also found that students exposed to environmental education exhibited higher levels of PEBs. Their findings suggest that educational interventions can effectively promote PEBs and practices.

Some studies (e.g., Vrselja et al., 2024; Okoro et al., 2023; Olubela, 2021; Gifford & Nilsson, 2014) have found that gender, age, and socio-economic factors influence the impact of environmental education on PEBs. For instance, female students have been found to exhibit more PEBs than male students due to greater levels of environmental concern and personal responsibility. Additionally, students from science-related disciplines tend to have higher levels of environmental knowledge and exhibit stronger PEBs compared to those in non-science fields.

The foregoing review of literature reveals that although there has been many research on the role of environmental education in shaping PEBs, there is little or no research on the extent to which taking environmental economics influences PEBs.

3. Methodology

3.1 Theoretical Framework

This study adopts the *knowledge-attitude-behaviour (KAB) theory* to investigate the factors influencing pro-environmental behaviours (PEBs). The knowledge-attitude-behaviour theory holds that environmental education increases knowledge, which leads to positive attitudes, and in turn, influences PEBs. Individuals who acquire more knowledge about environmental issues are expected to develop more positive attitudes towards the environment, which should lead to increased PEBs. It focuses on how education can promote awareness, attitudes, and skills for sustainable living.

This study employs the KAB theory as the primary theoretical framework to understand the relationship between environmental education and PEBs in Nigeria. The choice of this framework was informed by the fact that it aligns well with the objectives of this study and provides testable constructs, facilitating empirical validation through survey or experimental methods.

3.2 Model Specification

First and foremost, descriptive statistics were employed to gauge the level of PEB of the participants (economics students). The descriptive statistics used include mean, standard deviation, and percentage.

Next, to estimate the effect of taking an environmental economics on PEB, the KAB theory was modelled in two equations—Equations 2 and 4. Equation 2 captures the second and third specific

objectives of this study while Equation 4 captures the fourth specific objective. Based on KAB theory, the baseline model was specified as

$$Peb = f(Expo, Z) \tag{1}$$

where *Peb* represents PEBs, *Expo* exposure to environmental economics, and *Z* vector of control variables which include the student's gender, age, and parental socio-economic status (*Pses*).

To examine whether students who take environmental economics exhibit higher levels of PEBs (Objective 2) and to identify the factors that moderate the relationship between environmental education and PEB (Objective 3), a classical linear regression equation was specified as

$$Peb_i = \beta_0 + \beta_1 Expo_i + \beta_3 Gend_i + \beta_4 Age_i + \beta_5 Pses_i + \beta_7 (Expo_i \times Pses_i) + \varepsilon_i \tag{2}$$

where *Peb*i is the PEB index for student *i,* measured as a continuous composite behaviour index developed by averaging responses to multiple behaviour-related questions. *Expo* is exposure to environmental economics (= 1 if the student had taken environmental economics, 0 if otherwise). *Gend* is the gender of the respondent (= 1 if male, 0 if female); *Age* is the age bracket of the respondent in years. Parental socio-economic status (*Pses*) proxied by the father's highest educational level (Hoffmann & Muttarak, 2020), and ε_i is the error term.

To identify the specific PEBs influenced by environmental economics (Objective 3), the following multivariate logit model was specified:

$$Peb_{ij} = \Phi(\beta_1 Expo_i + \beta_2 Z_i + \varepsilon_i) \tag{3}$$

where Φ is the cumulative normal distribution (for the logit link function); and ε_i is the error term that might be correlated across the behaviours. Incorporating *Z* (the vector of control variables in Equation 3) gives

$$Peb_{ij} = \beta_0 + \beta_1 Expo_i + \beta_2 Score_i + \beta_3 Gend_i + \beta_4 Age_i + \beta_5 Pses_i + \beta_6 (Expo_i \times Score_i) + \beta_7 (Expo_i \times Pses_i) + \varepsilon_i \tag{4}$$

where Peb_{ij} represents the specific pro-environmental behaviour *j* for student *i* (= 1 if the respondent engaged in the behaviour, 0 otherwise). The multivariate logit model was employed to account for the fact that the pro-environmental behaviours are likely to be correlated (e.g., if a respondent recycles, they may also conserve energy). This model was estimated using maximum likelihood estimation (MLE), which is the standard method for logit models.

3.3 Study Population and Sample

The population considered for this study consisted of all undergraduate students of the Department of Economics and Development Studies, Kwara State University, Nigeria, whose total population stood at 423 as at February 2025, the time the survey was being conducted. The student population provided a suitable sample for assessing how formal education in environmental economics influences real-world environmental behaviour. The Department was chosen due to its structured environmental economics curriculum, making the students an ideal sample for understanding the effect of such coursework on PEBs. Besides, Kwara State University is a university in Nigeria known for its mantras of academic excellence, environmental sustainability, community development, and entrepreneurship. This makes the University a unique setting to explore the relationship between environmental education and PEBs.

A stratified sampling technique was employed. The students were stratified into experimental and control groups. The experimental group was composed of 93 parts 3 and 4 students who had taken environmental economics) while the control group was made up of 109 parts 1 and 2 students who had not taken environmental economics.

3.4 Data Collection Instruments

This study adopts a cross-sectional survey design. The data were collected in February 2025 with a structured questionnaire comprising open-ended, closed-ended and Likert-type response scale from 1 (never) to 5 (always). Data collection spanned a period of one week, ensuring adequate time for reaching a diverse sample. Data were collected using the Chisquares platform, a powerful tool designed for efficient data collection and analysis.

The questionnaire consisted of indicators of self-reported PEBs, which were composed of six domains adapted from the General Ecological Behaviour (GEB) scale (Kaiser et al., 1999): recycling, energy conservation (lights, water), reusing (plastics), waste disposal (avoiding littering), tree planting, and vicarious conservation behaviours (environmental advocacy). The use of multiple domains ensures a holistic assessment of PEB. The questionnaire contained demographic information, including age, gender, and father's level of education. The questionnaire used a 5-point Likert scale ranging from 1 (Never) to 5 (Always) to measure the frequency of engagement in each of the domains or PEBs. A continuous composite PEB index was created by averaging the responses to multiple behaviour-related questions. This index served as the dependent variable in the OLS regression analysis. The composite index was further categorized into Low, Moderate, and High levels of PEB for descriptive analysis.

The questionnaire was adapted from established scales in the literature, ensuring content validity (Hidayah and Agustin, 2017; Kaiser et al., 2007; Nahavandian et al., 2022). Cronbach's alpha was used to assess the internal consistency of the scale, with values ranging from 0.7 to 0.9, indicating high reliability. Face validity was confirmed by experts in environmental science and environmental economics. The reliance on established scales and expert validation ensures the

reliability and validity of the measurement. To further strengthen the validity of the questionnaire, consent was obtained from the students, and they were assured of confidentiality and anonymity. They were informed about the purpose of the study and their right to withdraw at any time. Data were anonymized to protect students' identities and ensure privacy.

4. Results and Discussion

The empirical results for this study are presented and discussed in this section, starting with the descriptive results followed by the regression results. Descriptive statistics in Table 1 summarise the demographic characteristics and key variables used in this study while the inferential statistics, including multiple regression analysis and multivariate logit regression analysis, in Tables 3 and 4 were employed to test the hypothesized relationships and the overall theoretical framework. All the analyses were conducted using Stata.

Table 1. Summary of the Sample Characteristics

Variable	*Category*	*Frequency (n = 202)*	*Percentage (%)*
PEB Level	High (4-5)	66	32.67
	Moderate (3-4)	73	36.33
	Low (1-3)	63	31.00
Exposure to Env. Econ.	Took Environ. Economics = 1	93	46.04
	Didn't take Environ. Econ = 0	109	53.96
Age Group	15–19	118	58.41
	20–24	65	32.18
	25–29	19	9.41
Gender	Male	89	44.19
	Female	113	55.81
	No formal education	16	7.92
	Primary	37	18.32
	Secondary	67	33.17
	Tertiary	82	40.59
PEB Index		M = 3.48	SD = 1.23

Note: n = sample size; M = mean; SD = standard deviation

4.1 Descriptive Analysis of the Sample

Below is the summary statistics of the sample. The total sample consisted of 202 students, with majority aged 15-19 (58.41%) and having fathers with secondary education (33.17%). Majority of the students exhibited moderate levels of PEBs (36.33%), while 32.67% exhibited high levels. This suggests that environmental education may have a positive influence on PEB. The average

PEB score among the students was 3.48 on a scale of 1 (never) to 5 (always), with a standard deviation of 1.23, indicating variability in pro-environmental engagement. This suggests that most students exhibited at least a moderate level of PEBs, with fairly even distribution across the three categories.

About 46% of the sample took environmental economics. Among those who took the course, the average PEB score was 4.1 (out of 5), indicating high engagement in PEBs, while that of those who did not was 2.86. In favour of females (Mean = 3. 80), the mean PEB scores of the students differed significantly according to gender.

Table 2 orders the average PEB scores for the environmental behaviours measured. The average score of all environmental behaviour was 3.48. The most frequently performed behaviours were energy conservation (Mean = 4.62), proper waste disposal (4.30), and reusing (Mean = 4.22). The least performed behaviours were recycling (Mean = 3.51), environmental advocacy (Mean = 2.80), and tree planting (Mean = 1.40).

Table 2. Means of All Measured Behaviour Types

Behaviour Type	Mean	Min	Max
Energy conservation (lights, water)	4.62	1	5
Proper disposal of waste	4.30	1	5
Reusing (plastics and other packaging materials)	4.22	1	5
Recycling (paper and other recyclable materials)	3.51	1	5
Environmental advocacy	2.80	1	5
Tree planting	1.40	1	5

4.2 Diagnostic Tests Results

Before the evaluation of the variables' explanatory power, violation of the assumptions for the multiple regression analysis was investigated. Tests of normality, homoscedasticity, and multicollinearity were carried out to ensure the suitability of the regression models. The residuals from the regression models were tested for normality using Shapiro-Wilk test (p = 0.8801), indicating that the residuals followed a normal distribution and thus satisfying the assumption of normality for linear regression. The Breusch-Pagan test (p = 0.877) suggests that heteroscedasticity is not a concern. The highest Variance Inflation Factor (VIF) value (excluding the intercept) was 2.03, which is well below the common threshold of 10 multicollinearity test, indicating that there was no significant multicollinearity concerns.

4.3 Impact of Environmental Economics on PEB

A multiple regression analysis was conducted to examine the explanatory power of each of the explanatory variables over PEBs. Having conducted these diagnostics, we proceeded to estimate the OLS regression model to test whether taking Environmental Economics increases PEB, using the composite PEB index as the dependent variable. The estimation results are shown in Table 3.

Table 3. OLS Regression Results

Variable	Coefficient	Std. Error	t-Stat.	p-value
Constant	1.678	3.77	14.70	0.000*
Expo (Took Environmental Economics = 1)	2.146	1.32	4.659	0.002*
Age (20-24)	2.120	1.05	2.97	0.001*
Age (25-29)	3.450	1.20	4.54	0.004*
Pses (Father's Education, Primary)	2.341	0.03	0.57	0.235
Pses (Father's Education, Secondary)	1.011	0.53	2.92	0.023*
Pses (Father's Education, Tertiary)	0.500	0.523	3.16	0.001*
Expo × Pses (Secondary)	0.340	0.399	2.21	0.031*
Expo × Pses (Tertiary)	0.421	0.400	2.01	0.040*
Gender (Male = 1)	-1.200	0.80	-1.50	0.135

*Note: *p < 0.05; the reference categories are Age 15-19 and Father's Education, no formal education*

The regression model demonstrated strong explanatory power, with an R^2 of 0.67 and adjusted R^2 of 0.65, indicating that approximately two-thirds of the variation in pro-environmental behaviours (PEB) was accounted for by the predictor variables. The model's overall significance was confirmed by a highly significant F-statistic of 43.95 ($p = 0.000$), suggesting that the collective predictive capacity of the independent variables was statistically robust. These fit indices collectively demonstrate that the specified model effectively captures the key factors influencing students' environmental behaviours.

Exposure to Environmental Economics had a statistically significant positive effect on PEB—that is, significantly increases the frequency of engaging in PEBs ($p = 0.02$). This implies that students who took the course exhibited significantly higher levels of PEBs. Regarding other control variables, only age and father's education (parental socio-economic status) were statistically significant predictors of PEB. Older students reported higher levels of PEB. The coefficients for Secondary and Tertiary education of fathers were positive and significant, indicating that parent's educational level significantly influenced the students' PEBs. Meanwhile, gender was not statistically significant ($p = 0.135$). The interaction variable Expo × Pses was statistically significant ($p = 0.031, 0.040$), suggesting that father's education has some moderating influence on the relationship between exposure to Environmental Economics and PEB.

4.4 Impact of Environmental Economics on Specific Pro-Environmental Behaviours

This section analyzes specific PEBs to identify which behaviours were most influenced by Environmental Economics. Multivariate logit regression analysis was conducted to examine the explanatory power of each of the explanatory variables over each of the PEB type; recycling, reusing, energy conservation, proper waste disposal, tree planting, and environmental advocacy. This analysis was conducted to address Objective 3 of the study, which aimed to determine which specific behaviours (e.g., recycling, energy conservation, proper waste disposal) were most affected by exposure to environmental economics. The results of the multivariate logit regression are presented in Table 4 in terms of odds ratios, which indicate the likelihood of engaging in a specific PEB given exposure to environmental economics and other factors.

Table 4. Multivariate Logit Regression Results

PEB Type	Exposure (Odd Ratio)	Std Error	z-value	p-value
Recycling	1.60	0.17	1.35	0.125
Reusing	1.40	0.13	3.08	0.002
Energy Conservation	2.04	0.01	3.00	0.003
Proper waste disposal	1.21	0.18	2.19	0.024
Tree planting	0.49	0.16	1.50	0.130
Advocacy	1.40	0.25	2.8	0.008

The model's fit was assessed using the Likelihood Ratio Test and Pseudo R^2 values. A significant p-value of 0.003 and reasonable Pseudo R^2 values of 0.71 indicated a good fit.

The results of the multivariate logit regression in Table 4 show that exposure to Environmental Economics significantly increased the likelihood of engaging in resource conservation, proper waste disposal, reusing, and advocacy. However, its effects on recycling and tree planting were not statistically significant (recycling, $p = 0.130$; tree planting, $p = 0.125$). Energy conservation was most strongly influenced by environmental economics, followed by reusing, advocacy and proper waste disposal. Students who took environmental economics were 2.04 times more likely to engage in energy conservation compared to those who did not take the course.

4.5 Discussion

The results support the hypothesis that taking an environmental economics enhances students' engagement in PEBs. The OLS regression (Objective 2) shows that students who took the course exhibited significantly higher levels of PEBs ($\beta = 2.146$, $p = 0.002$) than those who did not, aligning with the Knowledge-Attitude-Behaviour (KAB) theory. This finding aligns with previous

studies that emphasize the importance of environmental education in shaping attitudes and behaviours towards sustainability (Kollmuss & Agyeman, 2002; Hoffmann & Muttarak, 2020; Stern, 2000).

The results revealed that factors—age and father's education—have a strong influence on PEB, suggesting that older students and those with higher-educated fathers are more likely to translate environmental knowledge into action. This is consistent with findings by Gifford and Nilsson (2014) and Okoro et al. (2023), who identified gender and socio-economic status as significant determinants of environmental engagement. However, against these previous findings, gender does not have influence on PEBs. The non-significance of gender in our study could suggest that university education serves as an equalizing force in shaping pro-environmental attitudes.

In support of the strong overall relationship between Environmental Economics and PEBs, the findings from the moderation analysis indicate that father's education significantly moderates the effect of Environmental Economics on PEB. This is in consonance with studies, such as Stern et al. (1999), which have suggested that socio-demographic factors can shape environmental engagement. The significant moderating effects suggest that the effect that environmental education has on behaviour depends on parental educational backgrounds. This underscores the need for targeted educational interventions that consider demographic and socio-economic factors.

The multivariate logit results further confirm that exposure to environmental economics is a significant predictor of specific PEBs, particularly energy conservation, proper waste disposal, reusing, and advocacy. This highlights the importance of reinforcing education with institutional support, such as accessible recycling programs and sustainability initiatives on campus, as emphasized by Kollmuss and Agyeman (2002) and Stern (2000). These findings are consistent with the literature, which identifies reusing and energy conservation as key behaviours influenced by environmental knowledge (Erhabor & Don, 2016; Gatersleben et al., 2002; Steg & Vlek, 2009).

All these results suggest that while Environmental Economics significantly improves overall PEB, it does not significantly influence some specific PEBs. This finding suggests that while students may develop a general environmental consciousness, this does not always translate into distinct, measurable actions such as recycling or tree planting. This is consistent with the knowledge-behaviour gap identified in environmental psychology literature (Kollmuss & Agyeman, 2002), which highlights that possessing environmental knowledge does not always guarantee behavioural change.

5. Conclusion

This study sought to investigate the impact of taking an environmental economics on pro-environmental behaviours (PEBs) among students at Kwara State University, Nigeria. Drawing on the Knowledge-Attitude-Behaviour theory, the research explored whether exposure to environmental economics translates into tangible pro-environmental actions and identified factors that moderate this relationship. The findings suggest that exposure to environmental economics significantly enhances students' overall engagement in PEBs, reinforcing the role of environmental education in shaping sustainable practices. However, the influence of environmental economics on specific PEBs was not as pronounced, highlighting the knowledge-action gap in certain PEBs.

These findings contribute to the growing evidence supporting the role of environmental education in fostering sustainable behaviours. They provide valuable insights into the role of environmental education in fostering sustainable behaviours and offer implications for curriculum design and policy development in higher education. First, the study underscores the importance of integrating environmental economics into university curricula to promote sustainability. However, to bridge the gap between environmental knowledge and action, educational institutions should complement coursework with experiential learning opportunities, policy support, and institutional incentives that encourage practical engagement in sustainability initiatives. By equipping students with the knowledge and skills to address environmental challenges and fostering a culture of environmental responsibility through education, educational institutions can play a critical role in achieving global sustainability goals, ensuring that students not only understand environmental issues but actively engage in solutions to address them. Secondly, institutional support, such as improved access to recycling facilities and campus-wide environmental campaigns, can enhance the effectiveness of environmental education.

However, this study faces three limitations. First, this study relies on survey data which are prone to measurement and reporting errors. Because the self-reported data may not necessarily reflect the students' actual behaviour, they may introduce social desirability bias. Some respondents might have over-reported their engagement in pro-environmental actions. Thus, further studies utilizing experimental design or other designs should be considered in future research endeavours. Secondly, the findings from this study may be specific to the context of Kwara State University and may not be generalizable to other populations or regions. Therefore, future research may focus on a large and more generalizable sample that includes other community members with wide representativeness of children, adolescents, and adults. Thirdly, this study neglects the transmission mechanism (i.e., the mediators) between environmental education and PEBs. Hence, future research should consider the mediating

effects of factors such as attitude, subjective norm, and behavioural control on the education-behaviour nexus and how they interact with environmental education in explaining PEBs.

Given these limitations, the study highlights the need for further research to explore the long-term effects of environmental education and the role of additional moderating factors, such as cultural context, environmental policies, peer influence, and institutional factors that could shape PEBs more effectively. Future research should build on these findings to develop more comprehensive strategies for bridging the gap between environmental knowledge and action. A longitudinal approach or experimental design could also provide deeper insights into the long-term impact of environmental economics education on students' sustainability practices beyond their university years.

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