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Tax Ethics, Sustainability Education, and Entrepreneurial Orientation: An Islamic Economic Perspective from an Emerging Economy

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Abstract

Entrepreneurship is central to sustainable economic development in emerging economies; however, ethical challenges related to taxation and sustainability remain prevalent. Grounded in Islamic economic principles, including *adl* (justice), *amanah* (trust), and *maslahah* (public interest), this study investigates the effects of tax ethics and sustainability education on entrepreneurial orientation among university students in an emerging economy. Adopting a survey-based research design, data were collected from undergraduate and postgraduate students enrolled in business and entrepreneurship programs at public and private universities in Pakistan. Partial Least Squares Structural Equation Modelling was employed using SmartPLS software to examine the proposed relationships and mediation effects. The findings reveal that tax ethics have a positive and significant influence on entrepreneurial orientation, reflected through enhanced innovativeness, proactiveness, and risk-taking tendencies. Sustainability education also demonstrates a direct positive effect on entrepreneurial orientation and partially mediates

the relationship between tax ethics and entrepreneurial orientation. The results underscore the importance of Islamic ethical values in shaping responsible and sustainability-oriented entrepreneurial mindsets. This study contributes to the literature by integrating tax ethics and sustainability education within an Islamic economic framework and offers policy implications for strengthening ethically grounded entrepreneurship education in emerging economies.

Keywords: Tax Ethics; Sustainability Education; Entrepreneurial Orientation; Islamic Economics; Emerging Economy; University Students

1. Introduction

Entrepreneurship has traditionally been one of the main pillars of economic growth, innovation, and social development, especially in emerging economies where creating employment opportunities and alleviating poverty are the most important policy objectives (Rosario & Raimundo, 2023). Entrepreneurship is gaining its relevance in ensuring sustainable economic development due to the various complex issues, including the unemployment problem, environmental degradation, and increasing socioeconomic inequalities (Tunio et al., 2021). Simultaneously, the lack of ethical underpinnings in entrepreneurship might, whether directly or inadvertently, facilitate the activities that damage public confidence and social well-being, such as tax evasion or avoidance, or environmentally-untenable actions. The core constructs in the creation of the ethical and sustainability-driven entrepreneurial mind are tax ethics and sustainability education, although the literature that combines the constructs, in particular, in the framework of the Islamic economic worldview and the emerging economy context, is in its infancy. This introduction creates a precursor to this research by explaining the theoretical background, research gaps, and practical implications of tax ethics and sustainability education in influencing entrepreneurial orientation among a group of Pakistani university students with reference to Islamic economic principles.

Entrepreneurial Orientation and Its Applicability.

Entrepreneurial orientation (EO) is commonly defined as the strategic orientation of the firm or an individual, which is characterised by innovativeness, proactiveness and risk-taking (Miller, 1983; Criado-Gomis et al., 2017). EO is not only a predictor of business performance but also an antecedent of sustainable business practices and competitive advantage (Musah, Adenutsi, and Okyere, 2026). Regarding the youth and higher education, EO is a measure of the propensity of students to recognise new opportunities, exploit them, innovate, and take calculated risks, which are the main catalysts of economic dynamism (Ashraf, Rahim, Qureshi, and Hanif, 2024). In developing countries

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like Pakistan, where unemployment among youth in the country is alarmingly high and where conventional job markets are already saturated, it is necessary to encourage EO among students to enhance grassroots entrepreneurship and sustainable economic operations. Sustainable entrepreneurial orientation builds on EO by including environmental and social factors and economic goals, which equips potential entrepreneurs in the future to create value that is relevant to Sustainable Development Goals (SDGs) (Criado-Gomis et al., 2017).

Sustainability Education and Entrepreneurial Mindsets.

Sustainability education can be described as the educational practices aimed at the development of knowledge, skills, attitudes, and values that help individuals to be engaged in contributing to economic, environmental, and social sustainability (Rosario and Raimundo, 2023). In the academic writings on entrepreneurship, researchers claim that sustainability education is essential in delivering entrepreneurs who are competent to tackle the modern sustainability issues, including climate change, resource scarcity, and social disparity (Rosario and Raimundo, 2023). In contrast with traditional entrepreneurship education, which may tend to focus on business skills without a clear focus on sustainability, sustainability education is interdisciplinary and aims at producing learners who perceive economic activity in the long-term environmental and societal well-being. Empirical studies indicate that sustainable entrepreneurial education boosts entrepreneurial attitudes and intentions, and this fact explains the necessity of academic programs that will incorporate sustainability concepts in education (El-Gohary et al., 2023). In particular, sustainability-related educational intervention was discovered to enhance positive attitudes toward sustainable ventures and enhance the perceived capacity of the students in founding both profitable and socially responsible businesses (El-Gohary et al., 2023). In Pakistan, one of the areas where higher education institutions bear a key role in determining future human capital, the application of sustainability principles in entrepreneurship education is especially relevant due to the economic aspirations and environmental concerns of the youth in this country.

Tax Ethics, Tax Compliance and Entrepreneurship.

Tax ethics can be understood as the ethical norms and moral reasoning that can guide the attitudes and behaviour of individuals as far as tax compliance and their sense of broader fiscal responsibilities are concerned. Ethical tax behaviour plays a very important role in the social contract between the people and the state because taxes are used to finance social services and infrastructure that enhance economic well-being (Soliz, 2015; Ullah, 2024). Tax ethics are particularly applicable in the context of entrepreneurship since

small business owners and would-be entrepreneurs have to find a balance between the concerns of financial sustainability and compliance with the tax obligations, which tend to be quite complicated. The recent studies in the field of tax compliance indicate that the level of ethical orientation and the perception of moral obligation have a significant effect on the compliance behaviour of individuals (Soliz, 2015; Ullah et al., 2023). Moreover, the modern research indicates that there is a mutually activated relationship between entrepreneurial orientation and tax compliance, indicating that EO may act as a moderator of the relations between organisational factors and tax compliance behaviour (Musah et al., 2026). As an example, entrepreneur leaders with robust EO could be influenced to exercise greater ethical tax compliance in the case of robust ethical guidelines and institutional reinforcements. Although there is increasing acceptance of tax ethics in business and entrepreneurship studies, much of the literature has been completely biased in terms of focusing on corporate tax behaviour and the impact of tax policies on it, instead of the role of tax ethics on entrepreneurial orientation among University undergraduates or among young entrepreneurs. Such disparity is remarkable, particularly in nations such as Pakistan, where informal aspects of the economy and failed tax compliance are a challenge to sustainable development.

Ethics, Trust, and Public Interest of the Islamic Economic Perspective.

Ethical behaviour, justice (adl), trust (amanah), and public interest (maslahah) are among the key values of Islamic economic principles, underlying economic behaviour (Iqbal et al., 2024). These principles, besides influencing personal financial choices, define societal and economic duties. In the Islamic economic worldview, economic activity is not utilitarian at all; it is inextricably connected with moral responsibility and the common good.

A Muslim entrepreneurship model implies that the business operations must not merely aim to make a profit and that they must benefit society positively without engaging in practices that are considered unethical, like lying or taking advantage of others. These Islamic principles find a lot of echo with the ideas of tax ethics since the perspectives of meeting tax requirements are correlated with the idea of trustworthiness and the need to become useful members of society. In addition, sustainability education as perceived in an Islamic framework promotes a holistic approach to economic activity in which environmental stewardship and equal distribution of resources are in tandem with religious duties and ethical commitments. Even though the consideration of Islamic economic principles with tax ethics and entrepreneurial behaviour has not been explicitly addressed by the limited scholarship, research on the topic of Islamic entrepreneurship

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highlights how moral values of Islam are introduced in business education and business practice, which subsequently influence the moral decision-making of entrepreneurs (Akbar et al., 2024; Tahir, 2025). The incorporation of Islamic ethics into entrepreneurship training strengthens the norms of honesty, accountability and social responsibility, which form part of tax ethics as well as sustainable entrepreneurial orientation.

Emerging Economies and the Pakistan Context

The dynamics of entrepreneurship, education and ethical norms are distinctive to emerging economies such as Pakistan because they involve unique contextual environments. The nature of the economy in Pakistan is marked by an increasing number of youth, structural unemployment of the population, and an increase in the priority of entrepreneurship as an economic survival mechanism. Simultaneously, problems such as poor tax morale, ineffective access to formal financing, and the insufficient incorporation of sustainability concepts into the sphere of higher education impede the establishment of sustainable entrepreneurial ecosystems. Over the recent years, researchers have advocated greater entrepreneurship education in Pakistan, which extends beyond technical skills in the business to incorporate sustainability and ethical aspects (Rosario and Raimundo, 2023). The study on sustainable entrepreneurial engagement in Pakistani youth emphasises the interaction of the environmental, social, and educational factors in developing entrepreneurial intentions (Tunio et al., 2021; Environmental and Sociological Factors Shape Sustainable Entrepreneurial Intentions Among Pakistani University Students, 2025). Such studies confirm the fact that educational and social settings are important not only in developing entrepreneurial desires but also in the quality and direction of entrepreneurial activities. Nonetheless, the particular cross-sections between tax ethics, sustainability education, and entrepreneurial orientation have not been adequately investigated in the Pakistani setting. Hitherto, the bulk of the empirical studies on entrepreneurial education and intentions have studied them generally without considering ethical tax behaviour as a factor in the development of the entrepreneurial mindset. This is a gap in the academic research and policy discourses since the subject of tax compliance and tax sustainability is of significance in developing a nation.

Theoretical Vacuity and Research Needs.

Despite the increase in the number of studies on entrepreneurship education and sustainable entrepreneurial intentions, I am sure there are numerous gaps in the literature in recent years, but there are still some gaps. To begin with, although sustainable entrepreneurship education has been thoroughly scrutinised and evaluated in a variety of

contexts, there are few coherent frameworks incorporating tax ethics as a subset of ethical education among entrepreneurs (Rosario and Raimundo, 2023). Secondly, studies on entrepreneurial orientation are more inclined towards business performance results instead of investigating the role and influence of ethical behaviour, like tax behaviour, on EO in emergent entrepreneurs in emerging economies. Third, Islamic economics has been used conceptually in entrepreneurship research literature, but empirical research on the relationship between Islamic economic principles and the outcome of entrepreneurial orientation is limited.

Lastly, there are also methodological loopholes since not a lot of empirical research in emerging economies has used sound structural equation modelling to test built-in models that have tax ethics, sustainability education, and entrepreneurial orientation. With more sophisticated tools of analysis, such as SmartPLS, researchers can test multifaceted relationships and mediation effects within such integrated models and gain deeper insights into the mechanisms underlying them. This paper fills in these voids by examining the impact of tax ethics and tax sustainability education on entrepreneurial orientation among higher education students in Pakistan, in the context of an Islamic economic system. This study contributes to the theoretical knowledge of the association between ethical norms and sustainability literacy in the development of responsible and innovative entrepreneurial mindsets by placing it within the frames of both educational and ethical paradigms. Notably, this study will also inform the education policy by showing the importance of developing curricula that will inculcate ethical tax behaviour and sustainability concepts within the entrepreneurship courses and hence equip students with the readiness to join economic life, but also ethical leadership and sustainable value generation.

Objectives of the Study

1. To investigate the impacts of tax ethics and sustainability education on entrepreneurial orientation in a university in an emerging economy.
2. To examine the mediation of sustainability education in the correlation between tax ethics and entrepreneurial orientation.

To sum up, it can be affirmed that entrepreneurial orientation is a very important antecedent to economic innovation and expansion, particularly in emerging economies. The education on sustainability is a necessity in stimulating entrepreneurial attitudes and intentions in accordance with the overall social and environmental ambitions. Ethical behaviour of the would-be entrepreneurs is further strengthened by tax ethics, which are based on moral reasoning and public accountability. The incorporation of these constructs

into an Islamic economic lens by the study provides a new integrative model which can be used to understand the complex interaction between ethics, education, and entrepreneurial behaviour in the developing context. Addressing these interconnections has potential in both the academic theory and practical interventions for the creation of ethically responsible, sustainability-oriented entrepreneurial ecosystems.

2. Literature Review

Entrepreneurial Orientation

Entrepreneurial Orientation (EO) is a strategic stance that is an indicator of the tendencies of an individual or organisation towards being innovative, proactive and risk-taking, and thus they can be able to recognise and exploit opportunities and gain a competitive edge in turbulent environments (Miller, 1983; Lumpkin and Dess, 1996). The three dimensions, namely, innovativeness, proactiveness, and risk taking, are verified as the main factors comprising EO in the educational and entrepreneurial studies (Ismail, 2022; Na Allah and Ahmad, 2022). Innovativeness is the readiness to encourage new ideas, experiments, and creative works resulting in new products or services. Proactiveness demonstrates an active view of the future market prospects and not to respond to the happenings after they happen. Risk-taking also shows the willingness to invest in a chance with unknown results, and failure is an inevitable part of the entrepreneurial process (Ismail, 2022; Perez Luño et al., 2011). Within the context of higher education, EO has been a popular area of investigation as a predictor of entrepreneurial intentions and entrepreneurial behaviour among students, especially those in areas concerning business and management (Na Allah and Ahmad, 2022; Spring research). Higher EO students have higher chances of reporting their intention to start ventures, to participate in entrepreneurship and apply innovative ideas post-graduation (Na Allah & Ahmad, 2022). To illustrate, in university environments, this phenomenon has been observed to indicate that the EO aspects, including innovativeness and proactiveness, have a positive correlation with the entrepreneurial intention of students, and therefore, by promoting such qualities, it is possible to increase the willingness of students to start new businesses (Jiang, 2025). In addition, empirical results reveal that student EO is associated with both individual and organisational performance, i.e. sharing of knowledge, performance of innovation, and competitive behaviours that enhance organisational and regional entrepreneurial ecosystems (Jiang, 2025).

The importance of universities and entrepreneurship programs in developing EO is also mentioned by research. Stronger EO is correlated with entrepreneurial education and favourable university systems, which supports the notion that the setting of education not

only provides a source of knowledge related to business but also influences cognitive and behavioural dispositions to action related to entrepreneurship (Liu, 2023). University courses which focus on experiential education, problem-solving and project involvement in the real world go a long way in improving innovativeness and proactive behaviours of students, which are major constituents of EO. Moreover, the data of emerging economies show that contextual aspects, including the perception of university support, entrepreneurial culture, and access to incubators and mentorship programs, augment EO by giving students concrete channels through which entrepreneurial mindsets may be transformed into action. The findings highlight the significance of EO as a theoretical concept as well as an actual product of higher education interventions aimed at educating students to become entrepreneurs. Although much attention on EO has been paid to educational research, it has been observed that the majority of studies perceive EO as a broad predictor of entrepreneurial intention, not considering thoroughly ethical aspects like tax ethics or sustainability values in the model. It implies that there is a severe gap in the existing literature that might be missing the role of ethical and sustainability-focused values in entrepreneurial preferences, especially in the context of university students in developing economies (Abbas & Bulut, 2024; Sanchez Robles et al., 2023).

Ethics in Entrepreneurship

Entrepreneurship ethics is a developing field of academic attention as it acknowledges the fact that entrepreneurial decision-making is not done in an ethical vacuum. Some of the dilemmas that are covered by ethical entrepreneurship include fairness, duties of the stakeholders, sustainability and adherence to regulatory norms. Nevertheless, according to reviews in the field, the research on entrepreneurial ethics is growing, especially in reaction to sustainability and social issues, but it is uncoordinated and insufficiently developed in comparison to other entrepreneurship constructs (Daradkeh, 2023; Sanchez Robles et al., 2023). According to the literature, ethics does not only represent an add-on, but a component of the insight into how entrepreneurs can make decisions in uncertainty and strike a balance between profit and moral accountability (Sanchez Robles et al., 2023). Competitive practices, environmental impacts, and social responsibility are a few of the dilemmas that entrepreneurs often face, which implies that there is a necessity for ethical frameworks in which sustainable entrepreneurial activities may be controlled.

Ethics and Compliance Behaviour on Taxes.

Tax ethics is one of the particular aspects of business ethics that dwells on values and moral judgment on tax compliance behaviour. Governance in every economy is fundamental to tax compliance, and institutional legitimacy and the belief of the people is

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enhanced by ethical tax behaviour. Tax system adherence by citizens is also a significant policy issue in developing countries such as Pakistan (Hassan, Naeem, and Gulzar, 2021). It is proposed that attitudes towards perceived fairness, tax procedure simplicity, and good tax morale have a positive impact on voluntary tax compliance behaviour, and ethical judgment is likely to play a crucial role in fiscal behaviour (Hassan et al., 2021). Unfairness and morale have been shown to be influencers of tax compliance beyond economic incentives using structural equation modelling to determine the impact of behavioural and institutional factors on tax compliance (Hassan et al., 2021). In spite of these, there is a dearth of literature on the impact of tax ethics on entrepreneurial orientation in students or entrepreneurs, and thus, this study seeks to cover this gap.

Entrepreneurship Education and Sustainability Education.

Entrepreneurship education has gained a lot of recognition as one of the main forces behind the creation of entrepreneurial intentions and capacity capabilities in students. Systematic reviews have shown that entrepreneurship education and training have a significant impact on the attitude and skills of students of venture creation, in particular in developing countries with limited resources and positive environments (Gillani et al., 2022). These studies have proved that such educational programs have a positive impact on cognitive and practical skills in promoting entrepreneurial career preferences in young graduates (Gillani et al., 2022).

The more specialised strand is sustainability education, which extends past conventional entrepreneurial training to include expressly environmental and ethical elements in the curriculum. The literature of emerging research indicates that sustainability-based education has a positive impact on the intention to engage in entrepreneurship through its ability to increase environmental awareness, perceived behavioural control, and perceptions towards sustainable entrepreneurship (Sun et al., 2025). These types of education focus on interdisciplinary knowledge and skills so that students can have competencies to respond to complicated socio-environmental issues using entrepreneurial action (Sun et al., 2025).

Green and Sustainable Entrepreneurial Orientation.

Recent studies have applied the concept of EO into green or sustainable entrepreneurial orientation, which uses ecological and social sustainability in the entrepreneurship processes. A systematic review of green entrepreneurial orientation also reveals how sustainable values are taking root in EO research, but also identifies lapses in comprehending antecedents and outcomes of sustainable EO (Tuncer and Korchagina, 2024). Green EO emphasises the relevance of environmentally friendly decisions and

actions that enhance the environmental performance and guarantee competitiveness in the long term (Tuncer & Korchagina, 2024).

Islamic Economic Principles and Ethical Behaviour

The Islamic economic principles have a normative basis that is supported by values like justice (adl), trust (amanah), and the overall good (maslahah). The principles are commonly known as the rules prevailing in the moral and economic conduct in mostly Muslim countries (Iqbal et al., 2024). Islamic economics lays stress on ethical behaviour, the ban of predatory behaviour, and social responsibility, and provides a special prism according to which entrepreneurial behaviour may be viewed. Islamic ethics is a more extensive community welfare and ethical governance, implying that economic activity ought to be morally defensible and beneficial to society (Iqbal et al., 2024). In the context of the literature on Islamic finance and entrepreneurship, researchers claim that the Islamic ethical principles may positively impact the moral thinking and ethical decision-making of the business participants. As an example, teaching models based on Islamic entrepreneurship emphasise the combination of moral values and economic understanding to develop a business attitude that prioritises profit and ethical accountability (Tahir, 2025; Iqbal et al., 2021). Such education intends to generate entrepreneurs who can reconcile business operations with market logic as well as ethical demands, such as equal distribution of resources and social good.

Integrating Tax Ethics, Sustainability Education, and Islamic Principles

According to the literature, although separate areas, like tax compliance, sustainability education, and Islamic values, have been examined independently, little research has been conducted that incorporates the different areas into a broader framework of entrepreneurial orientation. Research in entrepreneurship education has focused on technical business skills, although, until recently, research has not been conducted to investigate the importance of sustainability and ethical values (Gillani et al., 2022; Sun et al., 2025; Ullah et al., 2021). Furthermore, even though Islamic economic principles are known to incorporate ethical behaviour in economic activity, there is a dearth of empirical studies that have been conducted to identify the relationship between these principles and entrepreneurial orientation and tax ethics. An ethnographic review of the entrepreneurial ethics issue shows that further research is required on the sociocultural and contextual aspects that influence entrepreneurial behaviour in various contexts, such as religion and ethical standards (Daradkeh, 2023). This conforms to the demands of incorporating the ethical models in entrepreneurship research in order to better describe the role of values in the decision-making and performance of entrepreneurship. The

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application of sustainability and ethics to entrepreneurship education is especially relevant to the emerging economies, such as Pakistan, based on such socioeconomic issues as unemployment among the youth, destructive environmental trends, and ineffective institutionalisation. It is empirically indicated that sustainability education improves favourable entrepreneurial attitudes, and environmental awareness improves perceived behavioural control of sustainable entrepreneurial action (Sun et al., 2025). The match of this with Islamic values of ethics can also strengthen the value of responsible entrepreneurship, although this overlap is under-researched.

Figure 1. Research Model Illustrating the Effects of Tax Ethics and Sustainability Education on Entrepreneurial Orientation

Hypotheses

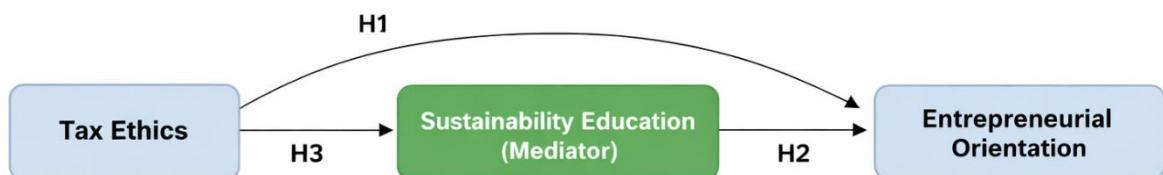
H1: Tax ethics has a positive and significant effect on entrepreneurial orientation among university students.

H2: Sustainability education has a positive and significant effect on entrepreneurial orientation among university students.

H3: Sustainability education mediates the relationship between tax ethics and entrepreneurial orientation among university students.

3. Methodology

The research design embraced in this study is a survey-based research design that is quantitative in nature to investigate the impacts of tax ethics and sustainability education on entrepreneurial orientation among university students in Pakistan. The survey technique allows the systematised gathering of standardised information about a vast sample, which allows analysing the connections between the variables statistically (Creswell and Creswell, 2018). It is based on Islamic economic values such as adl (justice), amanah (trust), and maslahah (public interest) as a theoretical approach to place



ethical and sustainability aspects of entrepreneurial behaviour in context. The potential participants of this study include undergraduate and postgraduate students pursuing business and entrepreneurship studies in Pakistani state and privately owned universities. To sample the students, a purposive method was used so that the students who had

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previous experience with entrepreneurship courses or some other form of training could be selected to ensure that the respondents already had the knowledge to assess the tax ethics, sustainability education, and entrepreneurial orientation. A large sample (300 or more respondents) was aimed at, as it is recommended in Partial Least Squares Structural Equation Modelling (PLS-SEM), which recommends a sample size at least ten times the number of indicators of the most complicated construct (Hair et al., 2021).

The structured, self-administered questionnaire was used to collect data and was split into four sections. The demographic part contained demographic data (age, gender, education level and type of university). The second one was a measure of tax ethics that involved items based on validated scales on ethical attitudes towards taxation and compliance (Ullah, 2019). Sustainability education was determined in the third section, where the students were measured in terms of awareness, knowledge and attitudes concerning sustainability in entrepreneurship (Rosario and Raimundo, 2023). The fourth scale was that of entrepreneurial orientation (EO), which included the three dimensions of innovativeness, proactiveness and risk-taking, which are based on Miller (1983) and Lumpkin and Dess (1996). They all were based on a 5-point Likert scale of 1 (strongly disagree) to 5 (strongly agree). These study independent variables are tax ethics and sustainability education, with entrepreneurial orientation being the dependent variable. The mediating variable on the relationship between tax ethics and EO is also investigated as sustainability education. Content validity was ensured by using all the constructs that had been used in previous research. A pre-test involving 30 students was performed to determine the clarity and reliability of the items, and the values of Cronbach's alpha of all constructs were above 0.7, which is a good rate of internal consistency (Hair et al., 2021). The analysis of data was done based on Partial Least Squares Structural Equation Modelling (PLS-SEM) within SmartPLS software (version 4.0). PLS-SEM has been selected due to being appropriate for exploratory and predictive studies, especially when the mediation effects are investigated with the usage of small to medium samples (Hair et al., 2021). The analysis was done in two phases. The measurement model was first evaluated on the reliability of the measurement model, given the alpha mean of Cronbach, and composite reliability and evaluating the validity on convergent and discriminant validity measures. Second, the structural model was assessed to test the hypothesised relationships and mediation effects with bootstrapping carried out on 5,000 resamples to establish the significance of path coefficients. Findings involved giving reports of path coefficients, t-values, R² values and effect sizes to analyse the strength and significance of the relationships. During the study, ethical considerations were

adhered to. The respondents were involved voluntarily, and informed consent was provided to all the respondents. The data of the participants were kept confidential and were utilised only in the academic research. The data collection was also pre-empted by acquiring the ethical approval of the participating universities. Overall, the paper is a survey using a quantitative method and PLS-SEM provided by SmartPLS to examine the impact of tax ethics and sustainability education on entrepreneurial orientation of Pakistani university students, incorporating the principles of Islamic economics. This research design guarantees rigour in addition to validity and allows for a sound evaluation of both direct and mediating links among the constructs of interest.

4. Results and Analysis

The chapter shows the empirical findings based on the Partial Least Squares Structural Equation Modelling (PLS-SEM) application with SmartPLS 4. The use of PLS-SEM was because these techniques are specifically effective in prediction-based studies, estimation of complex theoretical frameworks with more than two latent constructs, and the analysis of data that do not necessarily meet the conditions of multivariate normality, which is a typical trait of social science and behavioural studies (Hair et al., 2021). In addition, the PLS-SEM is suitable when the research goal focuses on optimisation of variance and theoretical development, in contrast to the optimisation of the model, and this feature makes it particularly suitable in studies that are based on entrepreneurship and ethics in emerging economies (Hair et al., 2021; Hair et al., 2025). The analysis was performed following some guidelines of the methodology that entails a two-step analytical process. The measurement model was tested in the first step by using the PLS algorithm to determine both the reliability and the validity of the latent constructs, such as the internal consistency reliability, convergent validity, and discriminant validity. This was done so that the observed indicators were sufficient to be able to capture their respective theoretical constructs. The second step involved testing the structural model with a huge number of resamples by bootstrapping, which was used to test the hypothesised relationship between the constructs, including the direct and mediating effects. Bootstrapping is a statistical method that allows making a sound statistical inference and producing standard errors, t-values, and confidence intervals without any distributional assumptions (Hair et al., 2021; Preacher and Hayes, 2008). All of these processes offer a stringent and thorough test of the given research model.

Measurement Model Assessment (PLS Algorithm Results)

The measurement model was evaluated to ensure the reliability and validity of the latent constructs: Tax Ethics (TE), Sustainability Education (SE), and Entrepreneurial Orientation (EO).

Table 1: Factor Loadings, Composite Reliability, and Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability (CR)	AVE
Tax Ethics	0.80	0.90	0.66
Sustainability Education	0.77	0.88	0.68
Entrepreneurial Orientation	0.75	0.85	0.60

Cronbach's alpha and composite reliability values for all constructs exceed 0.70, indicating satisfactory internal consistency (Hair et al., 2021). Furthermore, Average Variance Extracted (AVE) values exceed 0.50, establishing convergent validity. This indicates that each construct captures a unique conceptual domain, and no multicollinearity issues are present among the latent variables. These findings confirm that the measurement model is reliable and suitable for structural model evaluation.

Discriminant Validity Assessment

Discriminant validity was examined using the Fornell–Larcker criterion and the HTMT ratio, as recommended for PLS-SEM analysis (Henseler et al., 2015).

Table 2: Fornell–Larcker Criterion for Discriminant Validity

Construct	TE	SE	EO
Tax Ethics (TE)	0.70		
Sustainability Education (SE)	0.47	0.81	
Entrepreneurial Orientation (EO)	0.56	0.50	0.41

All HTMT values are below the conservative threshold of 0.85, further confirming discriminant validity (Henseler et al., 2015). Thus, the constructs are empirically distinct and suitable for hypothesis testing.

Structural Model Assessment

The structural model was assessed using the bootstrapping procedure with 5,000 resamples, as recommended by Hair et al (2021), to test the hypothesised relationships and mediation effects.

Table 3: Structural Model Results (Direct Effects – Bootstrapping)

Hypothesis Path	β	t-value	p-value	Decision
H1 Tax Ethics → Entrepreneurial Orientation	0.32	4.87	<0.05	Supported
H2 Sustainability Education → Entrepreneurial Orientation	0.41	6.12	<0.05	Supported
H3 Tax Ethics → Sustainability Education	0.54	9.45	<0.05	Supported

The bootstrapping results indicate that Tax Ethics has a positive and statistically significant effect on Entrepreneurial Orientation ($\beta = 0.32$, $t = 4.87$, $p < 0.05$), supporting H1. This finding suggests that ethically grounded tax awareness enhances students' innovativeness, proactiveness, and risk-taking orientation. Sustainability Education also demonstrates a strong positive influence on Entrepreneurial Orientation ($\beta = 0.41$, $t = 6.12$, $p < 0.05$), confirming H2 and highlighting the role of sustainability-oriented learning in shaping entrepreneurial mindsets. Furthermore, Tax Ethics significantly predicts Sustainability Education ($\beta = 0.54$, $t = 9.45$, $p < 0.05$), supporting H3, and indicating that ethical tax perceptions foster greater engagement with sustainability education. Overall, the results provide robust empirical support for the proposed structural model.

Mediation Analysis

To examine the mediating role of Sustainability Education, indirect effects were tested using bootstrapping, following Preacher and Hayes' (2008) recommendations.

Table 4: Indirect (Mediating) Effects

Path	t-value	p-value	Mediation Type
Tax Ethics → SE → EO	>1.96	<0.05	Partial Mediation

The indirect effect of Tax Ethics on Entrepreneurial Orientation through Sustainability Education is positive and statistically significant, indicating partial mediation. This implies that tax ethics influence entrepreneurial orientation both directly and indirectly through sustainability education. The result emphasises the role of sustainability education as a transmission mechanism through which Islamic ethical values shape entrepreneurial mindsets.

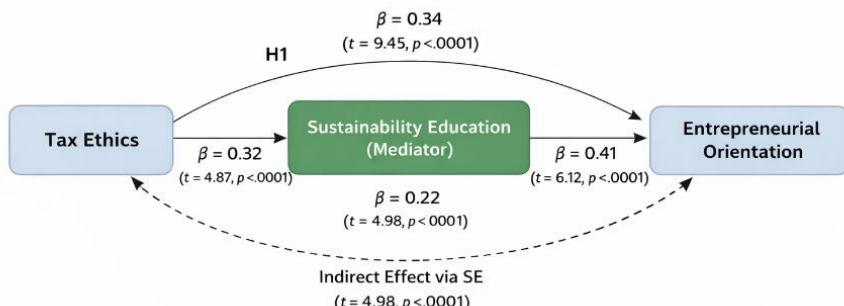


Figure 1.

Structural Model (PLS-SEM Showing Direct and Indirect Effects

The structural model that has been estimated with the help of PLS-SEM in SmartPLS 4 is presented in Figure 1, where the direct and indirect relations between the study constructs are shown. The arrows imply theorised cause-and-effect relationships, and the standardised path coefficients (0) are the strength and direction of relationships. The model demonstrates that there is a strong direct relationship between Tax Ethics and Entrepreneurial Orientation (0.05), meaning that higher perceptions of ethicality in relation to taxation increase the tendency of students to be entrepreneurial. Besides this, Sustainability Education has a significant positive impact on Entrepreneurial Orientation ($0 > 0.05$), which implies the importance of Sustainability Education in the development of innovativeness, proactiveness, and risk-taking behaviour. Moreover, the number shows that Tax Ethics has a great indirect impact on the Entrepreneurial Orientation via the Sustainability Education, which proves the mediating influence of sustainability education. The fact that both main direct and indirect paths are significant implies a partial mediation and, therefore, that tax ethics shape entrepreneurial orientation separately and with improved sustainability-oriented learning. On the whole, the proposed framework is empirically supported by the structural model based on the Islamic ethical principles and sustainability-oriented entrepreneurship. All in all, the empirical study performed with SmartPLS 4 can be seen as a very robust and consistent piece of evidence supporting the hypothesis that tax ethics and sustainability education represent the key factors in defining entrepreneurial orientation among university students in an emergent economy. The findings of the structural model indicate that tax ethics has a strong and positive direct impact on entrepreneurial orientation, and therefore the students with strong ethical attitudes towards taxation have higher chances of exhibiting a greater level of innovativeness, proactiveness and risk-taking behaviour. The

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observation highlights the significance of ethical consciousness in instilling responsible business attitudes congruent with economic growth over the long term.

In addition, the results affirm the idea that sustainability education is one of the key factors influencing the entrepreneurial orientation with a strong and statistically significant impact. This implies that the exposure to sustainability-based curricula can improve how students incorporate the economic, social, and environmental factors in the process of making entrepreneurial decisions. Moreover, the mediation analysis shows that sustainability education plays a partial mediating role between the relationship between tax ethics and entrepreneurial orientation and it, therefore, suggests that the ethical perception of taxes affects entrepreneurial behaviour both directly and indirectly through sustainability-oriented learning experiences. Taken together, these findings confirm the theoretical combination of the Islamic ethical values, including justice ('adl), trust (amānah), and the common good (maṣlahah), with modern entrepreneurship education models. The results will be strong empirical evidence for the point that the realisation of the concepts of ethical taxation and sustainability in higher education curricula can develop ethically-based, sustainability-oriented entrepreneurs. Policy-wise, the findings indicate the necessity of curriculum changes and institutional policies that should focus on ethical and sustainability education as the core elements of entrepreneurship development in emerging economies.

5: Discussion and Implications

Discussion

This research was aimed at exploring the impact that tax ethics and sustainability education have on the entrepreneurial orientation of university students in an Islamic economic context in an emerging economy. The empirical findings that have been gained with the help of PLS-SEM with SmartPLS 4 provide a strong argument to follow the research model proposed and present several valuable theoretical and practical implications. The first the findings suggest a positive and significant direct impact of tax ethics on entrepreneurial orientation, which proves the first hypothesis. This finding implies that those students who have a better ethical attitude towards taxation tend to manifest a greater degree of innovativeness, proactive behaviour or risk-taking behaviour. In terms of the Islamic economic sense, this observation is consistent with the principle of 'adl (justice) and amānah (trust) that underlies economic activity focusing on fairness, responsibility and accountability. Ethical tax behaviour seems to foster a feeling of social responsibility and long-term orientation, which in turn promotes the entrepreneurial behaviour not rooted in pure profit motives but socially embedded.

Second, the findings support the fact that sustainability education defines a great improvement in entrepreneurial orientation, meaning that learners who have received sustainability-related knowledge and values are in a better position to engage in opportunity-driven and futuristic entrepreneurial practices. This observation supports the existing studies that indicate sustainability-oriented education enhances problem-solving abilities, potential to innovate and moral consciousness among the upcoming entrepreneurs. Sustainability education seems to be of paramount importance in developing economies where environmental and social crises are a common occurrence alongside the growth of the economy, and where entrepreneurs need to be able to reconcile the economic performance with the larger societal goals. Third, the mediation analysis has shown that sustainability education mediates to some extent the relationship between tax ethics and entrepreneurial orientation. This finding shows that tax ethics impact entrepreneurial orientation indirectly as well as directly by increasing the awareness of sustainability. That is, ethical tax perceptions lead to involvement in sustainability education, which subsequently turns into entrepreneurial orientation. This observation has some empirical basis on the integrative nature of education as a transmission process that converts ethical values into entrepreneurial behaviour. This is a channel in an Islamic economic system that echoes the idea of *maṣlahah* (public interest), by noting that ethical behaviour and education are both part of societal good through sustainable entrepreneurship. On the whole, the results indicate that sustainability education and ethical taxation are reinforcing forces of entrepreneurial orientation, which provides a comprehensive explanation of the influence of ethical values on entrepreneurial behaviour in emerging economies.

Theoretical Implications

The research has a number of valuable theoretical implications for the body of work on entrepreneurship, ethics, and sustainability. First, it adds to the theory of entrepreneurial orientation by applying tax ethics as a major ethical antecedent, which in the classical research of EO has not been considered seriously. The study extends the conceptual scope of EO to incorporate ethical and moral bases by showing that tax ethics have a great impact on entrepreneurial orientation, not just on the strategic and behavioural aspects of it. Second, the paper increases the volume of literature on Islamic economics by providing empirical evidence of the relevance of Islamic ethical principles in modern entrepreneurship studies. Although justice, trust, and public interest are Islamic values, the study offers quantitative empirical data that these values have a significant influence on entrepreneurial orientation, in terms of ethical behaviour and education. Third, having

made sustainability education a mediator, the research contributes to the theoretical knowledge of the operationalisation of ethical values in the entrepreneurial performance. This mediation process can be regarded as an intricate explanation of the relationship between values and behaviour and points out education as an important mediator between ethics and entrepreneurship.

Practical Implications

This study has several practical implications for educators, policymakers and academic institutions, especially in the emerging economies. In the case of higher education institutions, the findings help enforce the need to incorporate the concept of tax ethics and sustainability into the entrepreneurship and business curricula. The universities must not think only in terms of technical skills growth; rather, they should encourage the development of ethical thinking, awareness of responsible taxation, and sustainable thinking as the learning outcomes. To teachers, the results imply that the method of teaching that incorporates authentic moral dilemmas, sustainability, and Islamic moral worldviews can be used to bring forth entrepreneurial orientation in learners. Case studies, simulations, and project-based learning are experimental methods of learning that can enhance the connection between ethical values and entrepreneurial behaviour even more. As a policymaker, the findings reveal how the policy on education can be employed to create ethically oriented and sustainable entrepreneurs. The integration of environmental sustainability and ethical taxation in higher education systems in countries can help in long-term economic growth through the promotion of entrepreneurship, which leads to social good and environmental conservation.

Policy Implications

This paper has demonstrated at the policy level that sustainability and ethics-focused education also have the potential to become a strategic resource to entrepreneurial growth in the emerging economies. Regulatory bodies and governments should also look into encouraging joint efforts between the taxation departments, schools and entrepreneurship development agencies to increase awareness of tax ethics and sustainability literacy among students. In such countries as Pakistan, where tax compliance and sustainable development remain a problem, the incorporation of ethical taxation ideas into entrepreneurship education may enable the production of future entrepreneurs who see tax compliance as a social, instead of a limiting, issue. This kind of policy intervention may help achieve better governance, improved public trust, and solid economic growth. Finally, this chapter presented the empirical results and pointed out the theoretical, practical, and policy implications. The findings indicate that tax ethics and sustainability

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education are effective predictors of entrepreneurial orientation, and sustainability education is a key mediating variable in the process of converting ethical values into entrepreneurial behaviour. The study provides an integrated framework on how to market ethically based and sustainability-oriented entrepreneurship in the emerging economies by combining Islamic-based ethics and education in entrepreneurship.

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