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Can Universities Be the Launchpads for a Sustainable Entrepreneurial Revolution?

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ABSTRACT

In recent years, university ecosystems have assumed an increasingly significant role in fostering sustainable entrepreneurship, particularly in India. This study attempts to examine how university ecosystems shape students' intentions towards sustainable entrepreneurship by addressing the integration of institutional and individual level determinants. Although entrepreneurship education has been widely examined, a comprehensive understanding of how university sustainability orientation and entrepreneurial climate interact with students' cognitive perceptions remains insufficiently developed. Accordingly, this study proposes and empirically tests an integrated framework that captures the interplay between university sustainability orientation, entrepreneurial climate, perceived barriers and risks, and awareness of adverse consequences. A quantitative research design was employed. Primary data were collected from 427 students across 25 higher education institutions in the Delhi–NCR region. To ensure data reliability and structured administration, an external research agency, Gen Next, was engaged for survey deployment and data collection. Regression analysis using STATA was utilised to examine both direct relationships and mediating effects within the proposed model. The findings indicate that university sustainability orientation and entrepreneurial climate exert a significant positive influence on students' sustainable entrepreneurial intentions. However, these relationships are partially mediated by perceived barriers, perceived risks, and awareness of adverse consequences, underscoring the importance of cognitive evaluation in translating institutional support into entrepreneurial intent. The study contributes by integrating institutional ecosystem factors with individual cognition, highlighting implications for universities and policymakers to reduce barriers and strengthen sustainability-driven entrepreneurial outcomes.

1. Introduction

Universities are recognizing an ethical obligation to integrate sustainability into their institutions through various means including teaching, research, operations, assessment, and reporting (Disterheft et al., 2013; Lozano et al., 2015). This finding relates positively to the demands by policy makers that sustainable entrepreneurship should be addressed in (higher) education, to prepare the mind-set of future "green entrepreneurs". However, there is limited research on how university systems should be structured to effectively support sustainable entrepreneurship.

Recent studies have highlighted the increasing role of higher education institutions in promoting sustainability-oriented entrepreneurial behaviour among students and graduates (Yasir et al., 2023; Vuorio et al., 2024; Fellnhofer & Kraus, 2024). Universities are increasingly recognized as critical actors in fostering entrepreneurial competencies aligned with sustainable development goals. In addition, recent global reports on entrepreneurship and education highlight a strong correlation between university-based programs and students' likelihood of pursuing sustainability-driven ventures (for example, GEM Global report 2024/2025; UNESCO's Global Education Monitoring Report, 2023) education plays a crucial role in equipping students with the skills to drive sustainable innovation. These reports emphasize that integrating sustainability into entre-

preneurship curricula equips students with the skills to address environmental and social challenges through business solutions. These findings reinforce the need for universities to foster an entrepreneurial culture that prioritizes sustainability.

Existing research examines various factors influencing entrepreneurship education, yet studies on sustainable entrepreneurship within universities remain fragmented. Some focus on internal factors such as university policies, incentive systems, leadership, and institutional culture (Zilahy & Huisingh, 2009; Freedman & Silberman, 2003). Others highlight external influences like government regulations, regional sustainability agendas, and industry collaborations (Mowery & Sampat, 2001). Recent studies suggest that a combination of internal (strategy, structure, culture) and external factors strengthens sustainable entrepreneurship ecosystems (Rothaermel et al., 2007). Entrepreneurial universities play a critical role in promoting venture creation through incubation facilities, mentorship programmes, entrepreneurial culture, and networking opportunities that encourage entrepreneurial engagement and innovation (Audretsch et al., 2023; Guerrero et al., 2024). Despite these advances, limited research has developed comprehensive frameworks that simultaneously examine institutional ecosystem factors and individual cognitive determinants of sustainable entrepreneurship. Therefore, there is a pressing need for understanding the antecedents of the university ecosystem in supporting sustainable entrepreneurship in India. Hence, in this research we explore the interplay between university policies, social/cultural, legal/economic factors, and individual motivations in promoting sustainable entrepreneurship among university students. Sustainable entrepreneurship has emerged as a critical pathway for addressing environmental and social challenges while fostering economic development. However, limited research has examined how university ecosystems shape students' intentions to engage in sustainable entrepreneurial activities, particularly in emerging economies. Existing studies have primarily focused on individual cognitive antecedents while paying limited attention to institutional influences. To address this gap, this study investigates the relationship between university entrepreneurial climate and sustainable entrepreneurial intention among students in the Delhi-NCR region of India. Furthermore, it examines the mediating roles of perceived desirability and perceived feasibility in explaining this relationship.

The objectives of this study includes examining the effect of university entrepreneurial climate on sustainable entrepreneurial intention, investigating the influence of perceived desirability and perceived feasibility on sustainable entrepreneurial intention and to assess the mediating roles of perceived desirability and perceived feasibility.

2. Literature Review

2.1. Defining Sustainable Entrepreneurship

Sustainable entrepreneurship involves creating business ventures that aim for economic gain while also integrating social and environmental values. Unlike traditional entrepreneurs, sustainable entrepreneurs focus on addressing societal challenges through innovative solutions that are both economically viable and environmentally sustainable. Their approach prioritises long-term impact over short-term profits, with the goal of creating businesses that benefit both the community and the environment.

In India, sustainable entrepreneurship is seen as a crucial element in achieving the country's Sustainable Development Goals (SDGs) (Gupta et al., 2021). Indian sustainable entrepreneurs often focus on developing business models that address the country's unique social, economic, and environmental challenges. Key areas of focus include rural development, renewable energy, waste management, climate change, and water conservation (Singh & Sharma, 2019).

A distinctive feature of sustainable entrepreneurship in India is the integration of traditional knowledge with modern business practices, as highlighted by Rai (2021). This approach not only helps preserve cultural heritage but also drives innovation. Entrepreneurs in this sector aim for inclusive growth, working to uplift marginalized communities while ensuring environmental sustainability.

Recent scholarly contributions further emphasise that sustainable entrepreneurship is increasingly recognised as a strategic response to global sustainability challenges, including climate change, inequality, and resource scarcity. Studies indicate that entrepreneurs who integrate sustainability into their business models are more likely to generate long-term competitive advantage while contributing to broader societal goals (Rosário et al., 2022). In addition, sustainable entrepreneurship has been identified as a critical mechanism for advancing circular economy practices, particularly in emerging economies where resource efficiency and waste reduction are essential (Apostu et al., 2023).

Moreover, contemporary research highlights the importance of institutional and ecosystem-level support in enabling sustainable entrepreneurship. Universities, policy frameworks, and industry collaborations play a crucial role in fostering sustainability-oriented innovation by providing knowledge, resources, and networks (Kshetri, 2021; Contreras et al., 2022). In developing economies such as India, where structural constraints often limit entrepreneurial activity, such ecosystem support becomes even more significant in facilitating the transition from intention to action.

Another emerging perspective within the literature underscores the role of sustainable entrepreneurship in promoting inclusive and equitable development. By targeting underserved populations and addressing grassroots challenges, sustainable ventures contribute to social transformation while ensuring economic participation across di-

verse segments of society (Hall et al., 2010; Muñoz & Cohen, 2018). This is particularly relevant in the Indian context, where disparities across regions and communities necessitate innovative and inclusive entrepreneurial approaches.

Despite its growing prominence, sustainable entrepreneurship continues to face several challenges, including limited access to finance, regulatory complexities, and inadequate awareness of sustainability practices. Recent studies suggest that overcoming these barriers requires a combination of institutional support, policy intervention, and capacity building to create an enabling environment for sustainable ventures (Apostu et al., 2023; Rosário et al., 2022). These insights reinforce the need for a more integrated approach to understanding and promoting sustainable entrepreneurship, particularly within the context of university ecosystems.

2.2. The Role of University Education in Sustainable Entrepreneurship

The role of digital transformation in strengthening university ecosystems for sustainable entrepreneurship has gained increasing scholarly attention. The integration of digital technologies, including artificial intelligence, data analytics, and digital platforms, enables universities to expand access to entrepreneurial resources and sustainability knowledge at scale. Digital learning environments, virtual incubators, and online collaboration tools facilitate interdisciplinary engagement and global connectivity, allowing students to co-create solutions to sustainability challenges across geographical boundaries (Secundo et al., 2021; Nambisan et al., 2019). Empirical evidence indicates that digitally enabled entrepreneurial ecosystems enhance opportunity recognition and innovation capacity, particularly in sustainability-oriented domains, by supporting agile experimentation and data-driven decision-making (Kraus et al., 2023). This transformation strengthens the ability of universities to function as catalysts for sustainable innovation and entrepreneurial development.

The significance of institutional leadership and governance in shaping sustainability-oriented university ecosystems is also widely recognised. Leadership commitment towards sustainability influences the extent to which sustainability principles are embedded within institutional strategies, curricula, and entrepreneurial initiatives. Universities that adopt an integrated and strategic approach to sustainability are more likely to create enabling environments that support sustainability-driven ventures (Trencher et al., 2014; Leal Filho et al., 2023). In addition, governance mechanisms such as sustainability policies, accountability frameworks, and performance measurement systems play a critical role in aligning institutional objectives with broader sustainability goals. Evidence suggests that leadership-driven cultural transformation fosters an environment that encourages experimentation, innovation, and responsible entrepreneurship, thereby strengthening the long-term impact of university ecosystems on sustainable entrepreneurial outcomes (Kraus et al., 2023; Leal Filho et al., 2023).

2.3. University Entrepreneurship Orientation and Entrepreneurial Climate

University entrepreneurship orientation reflects the strategic direction and formal commitment of an institution toward fostering entrepreneurship and sustainability. It is embedded within the university's mission, curricula, and institutional policies that signal the importance of entrepreneurial and sustainable values. For example, when a university integrates sustainability-focused courses across disciplines or mandates entrepreneurial projects within its programmes, it demonstrates a strong commitment to embedding sustainability into both education and practice. Through such mechanisms, university orientation provides students with legitimacy, structured knowledge, and opportunities to develop sustainability-oriented mindsets, representing the top-down strategic intent of the institution (Hoogendoorn, van der Zwan, & Thurik, 2019).

In contrast, university entrepreneurial climate refers to the perceived culture, environment, and day-to-day support experienced by students when engaging with entrepreneurial activities. While orientation captures formal institutional intent, climate reflects how these intentions are translated into lived experiences. It is shaped by factors such as mentorship quality, peer support, tolerance for failure, accessibility of incubation centres, and exposure to entrepreneurial opportunities. For instance, when students perceive faculty members as approachable, institutional resources as accessible, and failure as part of the learning process, the entrepreneurial climate becomes supportive and enabling. Such an environment fosters confidence, reduces uncertainty, and facilitates the translation of entrepreneurial and sustainability-oriented values into action (Eller, 2020).

The interaction between university entrepreneurship orientation and entrepreneurial climate is critical in shaping students' entrepreneurial intentions. A strong institutional orientation without a supportive climate may fail to produce meaningful outcomes, as students may not perceive adequate support to act upon institutional signals. Conversely, a favourable climate without clear strategic direction may lack coherence and sustainability in its impact. Therefore, both dimensions operate in a complementary manner, where orientation provides the structural foundation and climate ensures its effective implementation. This alignment enhances students' perceptions of feasibility and desirability, which are central to the development of entrepreneurial intention.

Furthermore, the alignment between institutional orientation and perceived climate plays a crucial role in fostering sustainability-oriented entrepreneurship. When universities

consistently reinforce sustainability values through both formal policies and everyday practices, students are more likely to internalise these values and translate them into entrepreneurial behaviour. This synergy not only strengthens entrepreneurial intention but also enhances the likelihood of developing ventures that balance economic, social, and environmental objectives, thereby contributing to broader sustainable development outcomes.

Contemporary research further reinforces the importance of aligning institutional strategy with experiential learning environments in shaping entrepreneurial outcomes. Studies indicate that universities that actively integrate sustainability into entrepreneurial education through interdisciplinary curricula, experiential learning platforms, and incubation support are more effective in developing sustainability-driven entrepreneurial intentions among students (Bergmann et al., 2022; Secundo et al., 2022). Additionally, the presence of a supportive entrepreneurial climate characterised by accessible mentorship, industry linkages, and innovation-oriented culture significantly enhances students' confidence in pursuing entrepreneurial careers. Such findings highlight that the effectiveness of university ecosystems depends not only on formal strategic intent but also on the consistency with which these intentions are operationalised within the institutional environment, thereby strengthening the transition from entrepreneurial intention to action.

In the context of India, the integration of sustainable entrepreneurship within university ecosystems is becoming increasingly significant due to the country's commitment to fostering innovation and addressing environmental challenges. Government initiatives such as Startup India aim to create a supportive environment for startups through funding, industry–academia partnerships, and policy incentives. These efforts have encouraged universities to embed sustainability within their entrepreneurship programmes, recognising the critical role of education in preparing future entrepreneurs to address complex social and environmental issues (Rai, 2021; Kshetri, 2021). This integration reflects a broader shift towards aligning academic ecosystems with national development priorities and sustainability goals.

However, challenges remain in fully realising this integration. There is a need for more developed university ecosystems, including structured mentorship programmes, stronger collaboration between academic institutions and industry, and improved access to financial and informational resources. Institutional gaps often limit the translation of sustainability-oriented intentions into entrepreneurial action. Addressing these challenges is essential for strengthening sustainable entrepreneurship outcomes and aligning university ecosystems with broader objectives of sustainable development and inclusive growth (Agarwal, 2020).

2.4. Proposed Framework & Hypothesis Development

This study develops an integrated framework grounded in the Theory of Planned Behaviour (Ajzen, 1991), which posits that behavioural intention is shaped by attitudes, subjective norms, and perceived behavioural control. In addition, the framework is informed by institutional theory (DiMaggio & Powell, 1983; Scott, 2014) and entrepreneurial intention models (Krueger et al., 2000) to explain how institutional environments influence individual decision-making processes. Within this theoretical foundation, university ecosystems are conceptualised as critical antecedents that shape students' attitudes and perceived feasibility towards sustainable entrepreneurship.

The proposed framework integrates university-level, social, legal, economic, and individual-level factors to explain the formation of sustainable entrepreneurial intention. University sustainability orientation represents the formal strategic commitment of institutions, while entrepreneurial climate reflects the lived experience of support, mentorship, and opportunity (Hoogendoorn et al., 2019; Eller, 2020). Drawing on the Theory of Planned Behaviour, these institutional factors are expected to positively influence students' attitudes and perceived behavioural control, thereby enhancing entrepreneurial intention. To enhance sustainable entrepreneurship in India, it is crucial to develop an analytical framework that integrates university-level, social/legal/economic and individual level factors Such a framework emphasizes on capacity-building, policy support, and ecosystem collaboration to create a more conducive environment for sustainable ventures.

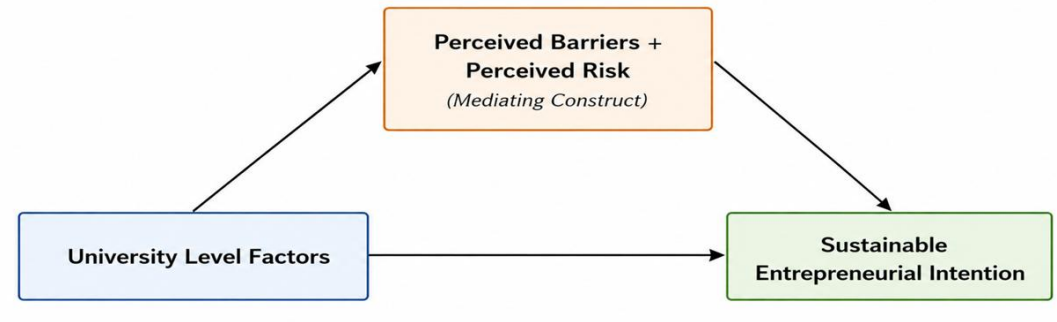

Figure 1. Proposed framework.

2.4.1. University Orientation and Sustainable Entrepreneurial Intention Intent

University sustainability orientation reflects the strategic commitment of institutions to embed sustainability within their mission, curricula, and support systems. This study demonstrates that when universities embed sustainability within entrepreneurship education, students gain the legitimacy, resources, and frameworks needed to recognize sustainability as a meaningful avenue for entrepreneurial ventures. As per prior studies, the integration of sustainability in university teaching, research, and organizational activities has been shown to strengthen students' orientation toward values and intentions associated with sustainable entrepreneurship (Disterheft et al., 2015; Lozano et al., 2015).Such orientation signals to students that sustainability is not only institutionally valued but also institutionally supported, which enhances their confidence in pursuing ventures that balance economic, social, and environmental objectives. Accordingly, students exposed to a strong sustainability orientation are more likely to express intentions toward sustainable entrepreneurship.

Collectively, previous studies suggest that supportive university environments enhance entrepreneurial competencies, access to resources, networking opportunities, and opportunity recognition among students. However, evidence concerning the influence of university entrepreneurial climate on sustainable entrepreneurial intention remains relatively limited, particularly within emerging economies. While prior research has largely focused on general entrepreneurial intentions, less attention has been paid to sustainability-oriented entrepreneurial outcomes. Therefore, further investigation is warranted.

H1: University sustainability orientation is positively related to students' sustainable entrepreneurial intention.

2.4.2. University Climate and Sustainable Entrepreneurial Intent

Entrepreneurial orientation reflects the formal strategic direction of a university, whereas entrepreneurial climate represents the lived culture, norms, and everyday support that students encounter in their entrepreneurial journey. A supportive entrepreneurial climate is often characterized by mentorship, peer encouragement, access to incubation facilities, networking opportunities, and an institutional tolerance for failure. As per studies, such climates positively influence entrepreneurial intention by enhancing perceptions of entrepreneurship as both feasible and achievable (Guerrero & Urbano, 2012). In the context of sustainability, when students perceive the climate to encourage experimentation and innovation, they are more likely to view sustainable entrepreneurship as a legitimate and attractive career path. The presence of resources, visible role models, and mechanisms that foster confidence in navigating uncertainty further strengthens students' intentions to pursue sustainability-oriented ventures. Existing research indicates that individuals who perceive entrepreneurship as personally attractive and socially desirable are more likely to develop entrepreneurial intentions. Nevertheless, limited studies have examined this relationship within the context of sustainability-oriented entrepreneurship. Consequently, perceived desirability is expected to play a significant role in shaping sustainable entrepreneurial intention.

H2: University entrepreneurial climate is positively related to students' sustainable entrepreneurial intention.

2.4.3. Role of Perceived Barriers and Risk

The framework of Hoogendoorn et al. (2019) provides the basis for this study, which proposes that perceived barriers and perceived risks act as mediating factors in the relationship between university sustainability orientation and students' intentions toward sustainable entrepreneurship. A university environment oriented toward sustainability provides knowledge, resources, and institutional legitimacy that can encourage students to develop entrepreneurial motivation, yet the conversion of this orientation into concrete action is not automatic. As per studies, entrepreneurs who are guided by sustainability goals often encounter stronger perceived barriers such as financial constraints, administrative burdens, and lack of access to relevant information, in addition to experiencing greater fears of failure when compared to conventional entrepreneurs. These barriers and risks serve as important filters that determine whether pro-sustainability orientations encouraged by universities are translated into practice. When universities succeed in lowering these barriers and risks through the provision of supportive resources, opportunities, and a favorable entrepreneurial climate, students are more likely to strengthen their intentions to pursue sustainability-oriented ventures. On the other hand, when such obstacles remain despite the presence of a sustainability-oriented environment, the positive influence of orientation on entrepreneurial intention becomes limited. For this reason, perceived barriers and perceived risks are regarded as central mediators that explain the process through which enabling university conditions are either transformed into or prevented from becoming sustainable entrepreneurial action.

Accordingly, this study proposes that perceived barriers and perceived risks partially explain the relationship between university sustainability orientation and students' sustainable entrepreneurial intention by influencing how students evaluate the feasibility and uncertainty associated with sustainability-oriented ventures." Prior literature consistently demonstrates that self-efficacy, perceived capability, and resource accessibility contribute to entrepreneurial intention formation. However, evidence remains scarce regarding how perceived feasibility influences intentions toward sustainable venture creation among university students. Given the unique challenges associated with sustain-

ability-oriented entrepreneurship, perceptions of feasibility may play an especially important role in shaping entrepreneurial intentions.

H3: Perceived barriers and perceived risks mediate the relationship between university sustainability orientation and students' sustainable entrepreneurial intention.

The entrepreneurial climate of a university, reflected in its supportive culture, the presence of mentorship, access to incubation facilities, and the encouragement of innovation, plays a significant role in shaping students' intentions toward sustainable entrepreneurship (Guerrero & Urbano, 2012). This relationship, however, is influenced by students' perceptions of barriers and risks. As per studies, when students encounter financial or administrative constraints, or when they perceive risks such as fear of failure, reputational loss, or uncertain returns, the positive effect of a supportive entrepreneurial climate on sustainable entrepreneurshial intention is diminished (Hoogendoorn et al., 2019). In contrast, when the institutional climate provides adequate resources, visible role models, and a culture that reduces uncertainty, perceived barriers and risks are lowered, which in turn strengthens students' intentions to engage in sustainable entrepreneurial ventures (Disterheft et al., 2015; Lozano et al., 2015).

According to Shapero's Entrepreneurial Event Model, institutional factors influence entrepreneurial intentions indirectly through cognitive mechanisms such as desirability and feasibility. University environments that provide entrepreneurial support, mentoring, networking opportunities, and exposure to entrepreneurial role models can strengthen students' perceptions regarding the attractiveness and feasibility of entrepreneurial careers. Consequently, students are more likely to develop intentions to engage in sustainable entrepreneurial activities. Therefore, university entrepreneurial climate may enhance sustainable entrepreneurial intention by strengthening students' perceptions of entrepreneurial attractiveness and capability.

H4: Perceived barriers and perceived risks mediate the relationship between university entrepreneurial climate and students' sustainable entrepreneurial intention.

2.4.4. Awareness of Adverse Consequence

Universities encourage students and entrepreneurs to develop a sustainable entrepreneurial intention by promoting awareness, skills, and opportunities related to sustainability. However, the extent to which this orientation translates into sustainable action depends on how individuals perceive the potential adverse consequences of engaging in sustainability. Specifically, universities with a strong orientation toward sustainability-expressed through curricula, institutional messaging, and extracurricular opportunities-are posited to heighten students' awareness of the adverse social and environmental consequences stemming from contemporary challenges. This heightened awareness, in turn, fosters a greater sense of personal obligation and motivation to address these challenges, thereby increasing students' orientation toward sustainable behaviors and entrepreneurial intentions. Therefore, it is expected that the effect of university sustainability orientation on students' sustainable entrepreneurial intention will be at least partially explained by students' increased awareness of adverse consequences, which acts as a catalyst converting institutional values and knowledge into personal commitment and pro-sustainability actions.

In contrast, when individuals perceive such adverse consequences as significant, they are less likely to adopt a sustainable entrepreneurial intention despite a strong university emphasis on sustainability Thus, awareness of adverse consequences serves as an explanatory mechanism that may influence the strength of the relationship between university sustainability orientation and students' sustainable entrepreneurial intention."

H5: Awareness of adverse consequences mediates the relationship between university sustainability orientation and students' sustainable entrepreneurial intention.

In addition to barriers and risks, the relationship between entrepreneurial climate and sustainable entrepreneurship intention is also mediated by students' perceptions of adverse consequences. Even within a favorable climate, students may be reluctant to pursue sustainability-oriented ventures if they anticipate negative consequences such as higher operational costs, trade-offs between environmental and economic goals, or stakeholder resistance. Conversely, when the entrepreneurial climate demonstrates how sustainability can align with long-term viability and reduces concerns about such trade-offs, students' sustainable entrepreneurial intentions are more likely to strengthen.

H6: Perceived adverse consequences mediate the relationship between university entrepreneurial climate and students' sustainable entrepreneurship intention.

3. Methodology

3.1. Research Design

This study adopts a quantitative research design to systematically examine the role of university ecosystems in shaping students' sustainable entrepreneurial intentions. A cross-sectional survey-based methodology was employed to collect primary data, enabling the empirical testing of relationships proposed within the conceptual framework. This approach is appropriate as it facilitates the measurement of latent constructs such as university sustainability orientation, entrepreneurial climate, perceived barriers and risks, and sustainable entrepreneurial intention through structured instruments.

The sample comprised 427 students drawn from 25 higher education institutions located in the Delhi–NCR

region of India. The selection of respondents ensured representation across diverse institutional contexts, including variations in academic programmes, institutional focus, and exposure to entrepreneurship education. A structured questionnaire was administered to capture responses using established measurement scales adapted from prior studies, ensuring both reliability and validity of the constructs.

Data collection was conducted using a systematic and standardised process to minimise bias and enhance data quality. The study employs statistical techniques, including regression analysis using STATA, to examine both direct and mediating relationships among variables. This methodological approach allows for a robust assessment of the influence of university ecosystems on sustainable entrepreneurial intention while accounting for individual-level cognitive factors.

3.2. Measures

Dependent variable**:** In this study, we consider student's Sustainable entrepreneurial intent as dependent variable. We adopt scale by Linan and Chen (2009), which consists of 5 items.

Independent variables**:** University orientation was adopted from Todorovic, McNaughton, & Guild, 2011). It is a 23-item scale. University climate was adopted from Bergmann, Geissler, Hundt, & Grave, 2018). University sustainability orientation was adopted from Todorovic, McNaughton, and Guild (2011) and measured using a 23-item scale. University entrepreneurial climate was adapted from Bergmann et al. (2018) to assess students' perceptions of institutional support for entrepreneurship, including aspects such as entrepreneurial culture, networking opportunities, mentoring support, and access to entrepreneurial resources. The scale items were measured using a Likert-type response format, with higher scores indicating a more supportive entrepreneurial climate. *Mediators*: Awareness of adverse consequences was assessed through weekly measurements using the scale developed by Stern, Dietz, Abel, Guagnano, and Kalof (1999). Participants evaluated the seriousness of two environmental issues (climate change and pollution from toxic substances in air, water, and soil) and two social issues (overpopulation and poverty linked to rising inequality). Each item was rated on a five-point Likert scale ranging from "not a problem" to "a serious problem.

Perceived barriers were measured based on respondents' perceptions of the extent to which they felt supported or constrained by the entrepreneurial infrastructure when starting a business. Perceived financial barriers were assessed by asking respondents whether they considered starting a business to be difficult due to insufficient financial support. Responses were recorded on a five-point Likert scale ranging from totally Strongly disagree (1) to Strongly agree (4). Perceived non-financial barriers captured respondents' views on the complexity of administrative procedures and the lack of adequate information regarding business start-up. These items were also measured on the same five -point Likert scale, where higher values reflected more unfavourable perceptions of the entrepreneurial environment.

The study employed previously validated measurement scales adapted from established entrepreneurship and sustainability literature. Table 1 summarises the constructs, sources, and number of items used in the study.

Table 1. Summary of constructs & number of items

Construct	Source	Number of Items
Sustainable Entrepreneurial Intention	Liñán & Chen (2009)	5
University Sustainability Orientation	Todorovic et al. (2011)	23
University Entrepreneurial Climate	Bergmann et al. (2018)	6*
Awareness of Adverse Consequences	Stern et al. (1999)	4
Perceived Barriers and Risks	Hoogendoorn et al. (2019)	3

4. Results

4.1. Demographic Characteristics

The sample reflects a strong foundation of entrepreneurial exposure among students across participating institutions. A significant 94% of respondents reported having undertaken at least one entrepreneurship-related course, while only 6% indicated no such exposure. This highlights the widespread presence of entrepreneurship education within the academic ecosystem. In terms of socio-economic background, the majority of students belonged to households with an annual family income ranging between INR 1 lakh and INR 5 lakhs, indicating a predominantly middle-income demographic. This composition provides a relevant and meaningful context for analysing students' sustainable entrepreneurial intentions within university environments as presented in Table 2.

4.2. Regression Analysis

The regression analysis offers deeper theoretical and empirical insights into how university ecosystems and individual cognitive factors jointly shape students' sustainable entrepreneurial intentions. The very low explanatory power observed in Model 1 ($R^2 = 0.02$) indicates that demographic characteristics alone are insufficient to explain intention

formation. This finding is consistent with intention-based theories such as the Theory of Planned Behaviour (Ajzen, 1991), which emphasises that behaviour is primarily driven by attitudes, subjective norms, and perceived behavioural control rather than static background variables. Similar findings have been reported in entrepreneurship literature, where demographic variables often show limited explanatory power compared to psychological and contextual factors (Krueger et al., 2000).

Table 2. Summary of demographic characteristics

Variable	Category	Percentage (%)
Age	18–25 years	75.00
	26–33 years	25.00
Educational Qualification	High School	1.28
	Bachelor's Degree	69.44
	Master's Degree	27.56
	PhD	2.00
Prior Business Experience	Yes	49.00
	No	51.00
Family Income (Monthly)	Less than ₹1 Lakh	6.00
	₹1–2.5 Lakhs	40.00
	₹2.5–5 Lakhs	31.00
	₹5–10 Lakhs	17.00
	₹10–15 Lakhs	4.00
	₹15–20 Lakhs	2.00
Received Entrepreneurship Education in University	Yes	94.00
	No	6.00

The introduction of institutional variables in Model 2 significantly increases the explanatory power ($R^2 = 0.59$), highlighting the central role of university ecosystems. Both university sustainability orientation ($\beta = 0.39$, $p < 0.01$) and entrepreneurial climate ($\beta = 0.29$, $p < 0.01$) exhibit strong positive effects on sustainable entrepreneurial intention. This aligns with studies by Guerrero and Urbano (2012), which demonstrate that university environments play a critical role in shaping entrepreneurial intentions by influencing both perceived desirability and feasibility. Furthermore, research by Bergmann et al. (2018) suggests that institutional support, including curriculum design and incubation infrastructure, significantly enhances students' entrepreneurial mindset. The relatively stronger effect of university orientation indicates that formal institutional signals such as sustainability integration, policies, and structured programmes provide legitimacy and direction, which is crucial for intention formation.

Model 3 incorporates mediating variables and further improves explanatory power ($R^2 = 0.69$), offering a more nuanced understanding of the underlying mechanisms. The significant effect of awareness of adverse consequences ($\beta = 0.25$, $p < 0.01$) highlights the importance of attitudinal and moral drivers. This finding is supported by the value-belief-norm theory (Stern et al., 1999), which suggests that awareness of environmental and social consequences enhances pro-sustainability attitudes and behavioural intentions. Similarly, studies in sustainable entrepreneurship indicate that individuals with higher environmental awareness are more likely to engage in sustainability-driven ventures (Shepherd & Patzelt, 2011).

Perceived barriers and risks ($\beta = 0.08$, $p < 0.05$), although smaller in magnitude, play a significant mediating role by influencing perceived feasibility. This is consistent with findings by Kuckertz et al. (2020), which highlight that perceived risks and institutional constraints can inhibit entrepreneurial action even when intention is present. The results also align with Hoogendoorn et al. (2019), who argue that sustainability-oriented entrepreneurs often face higher perceived barriers compared to conventional entrepreneurs, particularly in terms of financial constraints and uncertainty.

The reduction in coefficients for university orientation and climate in Model 3 indicates partial mediation, suggesting that institutional factors influence intention both directly and indirectly through cognitive mechanisms. This supports the broader argument that universities function not only as providers of resources but also as shapers of perception and cognition (Disterheft et al., 2015; Lozano et al., 2015). In other words, the effectiveness of university ecosystems depends on their ability to influence how students interpret opportunities, risks, and sustainability challenges.

The insignificance of most control variables further reinforces that entrepreneurial intention is largely shaped by

ecosystem and perceptual factors rather than demographic attributes. However, the weak negative relationship observed for certain income groups suggests that financial background may still influence perceived feasibility, particularly in contexts where sustainable ventures require higher initial investment or involve longer-term returns (Acs et al., 2017). The results as presented in Table 3 as below.

Table 3. Result of regression analysis

Variables	Model 1	Model 2	Model 3
University climate		0.29***	0.22***
		(0.03)	(0.03)
University orientation		0.39***	0.23***
		(0.04)	(0.04)
Perceived risk and barriers			0.08**
			(0.04)
Awareness of adverse consequence			0.25***
			(0.039)
Age (26-33 yrs)	0.01	-0.01	-0.01
	(0.02)	(0.01)	(0.01)
Gender (Female)	0.13	0.09	0.07
	(0.09)	(0.07)	(0.06)
Educational qualification			
Bachelor's degree	-0.09	-0.26	-0.12
	(0.25)	(0.16)	(0.15)
Master's degree	-0.16	-0.26	-0.15
	(0.28)	(0.28)	(0.16)
PhD	-0.07	-0.36	-0.38
	(0.52)	(0.34)	(0.30)
Prior entrepreneurship experience	0.03	-0.06	-0.06
	(0.10)	(0.06)	(0.06)
Family income			
1- 2.5 Lacs	-0.05	-0.16	-0.27**
	(0.19)	(0.12)	(0.11)
2.5 - 5 Lacs	-0.02	-0.17	-0.20*
	(0.19)	(0.12)	(0.11)
5-10 Lacs	0.04	-0.12	-0.23*
	(0.20)	(0.13)	(0.12)
10-15 Lacs	0.21	-0.13	-0.20
	(0.34)	(0.22)	(0.22)
15-20 Lacs	0.36	0.15	-0.06
	(0.46)	(0.30)	(0.27)
Received entrepreneurship education in university	0.18	0.15	0.17
	(0.21)	(0.14)	(0.12)
Constant	3.68***	0.86**	-0.21
	(0.59)	(0.59)	(0.39)
R-squared	0.02	0.59	0.69

** Standard errors in parentheses; N=427; *** p<0.01, ** p<0.05, * p<0.1*

5. Conclusion

The findings of this study offer valuable insights into the ways in which university ecosystems shape students' intentions toward sustainable entrepreneurship. The positive influence of university sustainability orientation and entrepreneurial climate confirms that institutional environments play a decisive role in cultivating pro-sustainability values and entrepreneurial motivation. The explanatory role of perceived barriers and risks. demonstrates that institutional support on its own does not ensure intention formation; what ultimately matters is how students evaluate the feasibility and uncertainty of entrepreneurship within these contexts. The influence of awareness of adverse consequences. further reveals that sustainability-oriented entrepreneurship is not limited to opportunity recognition but also requires individuals to weigh social and environmental trade-offs alongside economic viability.

The results also indicate that universities function not only as providers of knowledge and resources but as institutions that actively shape perceptions, thereby determining whether sustainability-oriented entrepreneurship is regarded as achievable and worthwhile. The evidence that barriers,

risks, and adverse consequences filter the impact of institutional orientation and climate contributes to a more nuanced understanding of intention formation. Theoretically, the findings extend entrepreneurial intention models by integrating the institutional context with individual cognition, suggesting that supportive ecosystems are necessary but insufficient unless they alter students' subjective assessments of feasibility and desirability. The findings further highlight that embedding sustainability into curricula or expanding incubation facilities does not automatically result in sustainable entrepreneurial action. The essential task for universities is to strategically design experiences that reframe risks as manageable, reduce bureaucratic and financial barriers, and reposition adverse consequences as challenges to be addressed through innovation. This interpretation underscores the importance of perception management in converting institutional support into entrepreneurial outcomes and emphasizes the interaction between context and cognition as a critical dimension of university ecosystems.

The findings are particularly relevant for Indian universities seeking to contribute to the country's sustainability and innovation agenda. The results demonstrate that sustainability-oriented entrepreneurship is most effectively encouraged when formal institutional commitment is supported by a favourable entrepreneurial climate and mechanisms that reduce students' perceptions of barriers and risks. Consequently, universities should focus not only on delivering entrepreneurship education but also on creating enabling ecosystems that facilitate sustainable venture creation.

6. Implications

6.1. Theoretical Contributions

The findings contribute to the literature on entrepreneurial intention by extending existing models through the integration of institutional context and individual cognition. Classical intention models emphasize feasibility and desirability as central determinants of entrepreneurial action (Ajzen, 1991; Krueger et al., 2000). The results of this study demonstrate that perceptions of barriers, risks, and awareness of adverse consequences serve as important explanatory mechanisms through which university ecosystem factors influence sustainable entrepreneurial intention. (Hoogendoorn et al., 2019). A sustainability-oriented curriculum and a favorable entrepreneurial climate are necessary but insufficient unless students' subjective evaluations of feasibility and uncertainty are addressed. The evidence indicates that universities function not only as providers of knowledge and resources but also as institutions that actively shape the cognitive frames through which students interpret entrepreneurial opportunities (Guerrero & Urbano, 2012). The focus on perception management as a central factor advances theoretical understanding of how institutional ecosystems influence sustainable entrepreneurial intentions. These insights refine intention models by highlighting the importance of aligning structural support with individual interpretation in the context of sustainable entrepreneurship (Disterheft et al., 2015; Lozano et al., 2015). Furthermore, the study contributes to sustainable entrepreneurship literature by demonstrating that institutional ecosystem factors alone are insufficient to generate entrepreneurial intentions. Rather, their influence operates through students' perceptions of barriers, risks, and adverse consequences. This finding provides a more nuanced explanation of how university ecosystems influence entrepreneurial behaviour within emerging economy contexts such as India, where resource constraints and institutional challenges remain prominent.

6.2. Practical Contributions

The findings provide several context-specific implications for higher education institutions, university administrators, entrepreneurship centres, and policymakers operating within the Indian higher education ecosystem. First, the significant influence of university sustainability orientation suggests that sustainability should not be treated as a standalone topic within entrepreneurship education. Universities in the Delhi-NCR region should integrate sustainability principles across business, engineering, social sciences, and innovation programmes through interdisciplinary courses, sustainability-focused capstone projects, and experiential learning activities linked to real environmental and social challenges.

Second, the strong effect of entrepreneurial climate highlights the importance of creating supportive entrepreneurial ecosystems within universities. Higher education institutions should move beyond classroom-based entrepreneurship education and establish sustainability-oriented incubation centres, green innovation labs, student-led sustainability clubs, and dedicated mentorship programmes that connect students with successful sustainable entrepreneurs, impact investors, and industry practitioners. Such initiatives can strengthen students' confidence and reduce uncertainty associated with sustainability-oriented venture creation.

Third, the mediating role of perceived barriers and risks indicates that students may possess entrepreneurial motivation but remain hesitant due to concerns regarding financial constraints, regulatory complexity, and business uncertainty. Universities should therefore provide structured support mechanisms such as seed funding schemes, sustainability-focused business plan competitions, startup advisory services, legal support clinics, and workshops addressing financial planning and risk management. These interventions can help students translate entrepreneurial intentions into actionable ventures.

Fourth, the findings relating to awareness of adverse consequences suggest that sustainability-oriented entrepreneurial intention is strengthened when students recognise

environmental and social challenges as opportunities for innovation rather than constraints. Universities should collaborate with local governments, non-governmental organisations, and industry partners to expose students to real-world sustainability problems such as waste management, renewable energy adoption, water conservation, circular economy practices, and social inclusion initiatives. Such exposure can encourage students to develop innovative business solutions addressing pressing societal challenges.

From a policy perspective, government agencies supporting entrepreneurship under initiatives such as Startup India, Atal Innovation Mission, and state-level startup policies should develop targeted funding and incubation programmes specifically designed for sustainability-oriented student ventures. Policy interventions should encourage stronger university–industry–government collaboration and provide incentives for universities that successfully promote sustainability-driven entrepreneurial outcomes. Such efforts can contribute to the development of a robust sustainable entrepreneurship ecosystem capable of supporting India's broader sustainability and economic development goals.6.3. Implications Scope of the Study and Future Research

This study is limited to students from 25 colleges in the Delhi–NCR region, which provides valuable but region-specific insights into how university ecosystems shape sustainable entrepreneurship. Future research should broaden the scope by including universities from rural and semi-urban areas, as well as cross-country comparisons, to capture cultural and institutional variations. Additionally, while this study focused on intentions, future work should adopt longitudinal designs to trace how these intentions evolve into actual entrepreneurial behavior. Finally, qualitative approaches such as case studies or interviews could complement the survey findings by offering deeper insights into how students personally interpret barriers, risks, and adverse consequences in their entrepreneurial journey.

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