

Green entrepreneurship in Saudi Arabia: shaping the landscape of the greener economy

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Abstract

Purpose – Entrepreneurship is one of the pillars of economic development and helps to green the economy. This study investigates the factors that affect green entrepreneurship (GE) in small- and medium-sized enterprises (SMEs) in Saudi Arabia.

Design/methodology/approach – Using quantitative modes, this study's findings are based on 334 valid cases from Saudi Arabian SME employees.

Findings – Using path analysis, this study's findings reveal that green entrepreneurial skills (GES), green opportunities (GOs), entrepreneurial motivation (EM), green incentives (GIs), availability of capital (AoC) and green entrepreneurial self-efficacy (GESE) have positive and significant effects on GE. Moreover, GESE mediates GE's relationships with GES, GOs, EM, GIs and AoC.

Practical implications – This study's findings support the development of green business practices in terms of green business planning, training and skills. The research provides opportunities for green businesses. Policymakers and SME authorities would benefit from this study's findings in producing green goods and services.

Originality/value – This study empirically confirms the role of various factors such as GESE and GE among Saudi Arabian SMEs.

Keywords Green entrepreneurship (GE), Economic development (ED), Green entrepreneurial skills (GES), Green entrepreneurial self-efficacy (GESE), Small and medium-sized enterprises (SMEs)

Paper type Research paper

1. Introduction

In the present era, entrepreneurship is one of the pillars that has either a direct or an indirect effect on a nation's economy. Indeed, it makes a substantial contribution to shaping the development of the economy (Abdelwahed *et al.*, 2022a). Economists and policymakers recognize that entrepreneurship is the driving force behind economic prosperity and in the global economy acts a catalyst for the expansion and promotion of productive activities across the board (Eniola, 2020; AlQershi *et al.*, 2023). In this way, green entrepreneurship (GE) gains robust momentum and, due to its ability to sustain development, is one of the major drivers of the green economy (Nordin and Hassan, 2019). The formation of small and medium-sized enterprises (SMEs) makes an enormous contribution to improving a developing



country's gross domestic product (GDP) (Nordin and Hassan, 2019). Due to Saudi Arabia's favorable and conducive environment for entrepreneurship, many potential entrepreneurs have progressively shaped the country's economic development (Kayed and Hassan, 2013). Male and female entrepreneurs have challenged preconceived notions about risk aversion and value creation in the Arab world by "pushing the envelope" in their communities (Sarkar *et al.*, 2021). According to Abdelwahed *et al.* (2022b), entrepreneurship in Saudi Arabia has permeated all elements of economic growth and, therefore, it provides not only novel combinations but, also, little advances that, over time, have a significant and cumulative influence on the economy. In addition, entrepreneurship in Saudi Arabia has significantly aided in making efficient use of resources; developing a self-sufficient community; and providing job opportunities. By making manufacturing investments, entrepreneurs end up exhausting all the country's natural resources. These include water, oil and mineral resources (copper and gold) (Yusuf and Albanawi, 2016).

To tackle these challenges and, more particularly in SMEs, Saudi Arabia's policies align with the increasing demands to address environmental challenges and to safeguard the environment. However, by promoting *GE* culture to achieve the Saudi Arabian Vision 2030s goal of enhancing SMEs' contribution to the GDP, the Saudi Arabian Government and SMEs have taken special initiatives to be ecologically friendly. The SMEs are trying to adopt a green approach (Ndubisi and Nair, 2009; Alwakid *et al.*, 2020; Yi, 2021) since several developing countries have made it of prime importance to adopt similar approaches (Lotfi *et al.*, 2018). Therefore, as researchers, we developed the following research questions to obtain answers from the Saudi Arabia's SMEs' employees:

RQ1. What factors affect Saudi Arabian SMES' GE?

RQ2. Does GESE play a mediating role in Saudi Arabian SMES' in developing GE's relationships with green entrepreneurial skill (GES), green opportunities (GOs), entrepreneurial motivation (EM), green incentives (GIs), availability of capital (AoC) and GE?

This study's findings support SMEs' policymakers and planners in developing *GE* environment to make the SMEs more successful and to improve their economic contribution. In addition to the introduction, this study consists of sections dealing with the literature review and the formulation of this study's hypotheses, the methods, analysis, discussion and conclusion and contribution, the limitations of this study's findings and the recommendations for future research.

2. Literature review

2.1 Green entrepreneurial skills (GES)

The term green skills has been used since the beginning of green technologies (Buntat and Othman, 2012) and is required to activate and develop green technologies (Sern *et al.*, 2018). Generally, green skills are sustainability skills associated with the knowledge, technical skills, attitudes and values that the workforce requires to support sustainable economic, social and environmental consequences in communities, businesses and industries (Vona *et al.*, 2018). Napathorn (2022) defines green skills as the abilities, values and capabilities required for survival and to offer sustenance to society through diminishing adverse effects on human activity and the environment. Green skills enable the environmental sustainability of economic activities and contribute to either reducing pollution or conserving natural resources (Sher *et al.*, 2019). *GES* helps to determine individuals' entrepreneurial behaviors and entrepreneurial intentions (EI) (Farooq, 2018). The *GES* are responsible if subsequent venture growth is to be achieved (Baum and Locke, 2004) along with self-employment (Reyad

et al., 2020). *GES* can be developed through entrepreneurship education; providing entrepreneurs with the knowledge and skills; and encouraging motivations essential for a successful venture (Lee *et al.*, 2005). Akande (2012) suggests that better SME performance is only possible through strategic entrepreneurial skills. Entrepreneurial skills during university education can be translated into entrepreneurship behaviors (Waris *et al.*, 2021). The green economy motivates individuals to start green ventures; these can be seen, also, as green entrepreneurial behaviors. They refer to individuals' steps and activities to launch and operate sustainable enterprises. By encouraging green entrepreneurial behaviors, people adopt sustainable company practices. In turn, this promotes general social well-being and new economic possibilities and jobs, and the mitigation of environmental problems. According to Al Mamun *et al.* (2019), networking, market orientation and entrepreneurial skills have positive effects in developing entrepreneurial competencies and in enhancing enterprise performance.

2.2 Green opportunities (GOs)

GOs underline the available opportunities where there are no entry barriers to the SMEs where individuals work. There may be a high demand for green production and services. There would be vast opportunities for green procurement, where individuals have, also, sustenance for green activities and access to information that leads toward green technology (Bakari, 2013). *GOs* make a significant contribution in connecting individuals from marginalized communities to pathways of sustainable employment. To better meet customer expectations, businesses have worked to become more environmentally responsible (Mishra and Sharma, 2010). The opportunities, which are related to entrepreneurial activity, enhance entrepreneurs' performance (Ciocoiu, 2011). Across the prefabricated building supply chain, the *GOs* illuminate the key tactics that support the sound policies and decision-making of government agencies, prefabricated product producers and contractors to obtain the environmental advantages (Chang *et al.*, 2018). According to Rizvi and Garg (2021), factors, such as opportunities, motivation and green abilities, enhance an organization's environmental performance.

2.3 Entrepreneurial motivation (EM)

EM is the process that motivates the entrepreneur to make greater efforts into accomplishing his entrepreneurial aspirations. *EM* relates positively and directly to individuals' efforts to perform their entrepreneurial tasks (Rajabi *et al.*, 2018). According to Lingappa *et al.* (2023), opportunity start-up motivation has influenced firm performance among women entrepreneurs that are mediated by women's entrepreneurial competencies and motivations to learn. The enterprise programs incline them to have higher *EM* and, therefore, they are more likely to become entrepreneurs. Factors, such as subjective norms, attitudes and perceived behaviors, control and mediate the association between perceived *EM* and EI (Solesvik, 2013). Entrepreneurial education has a positive and significant effect on *EM* and EI (Paliwal *et al.*, 2022).

2.4 Green incentives (GIs)

GIs are financial benefits to encourage projects and investments that reduce environmental destruction. In small firms, green economic incentives encourage and enhance green practices associated with green and financial performance (Clemens, 2006). Under social conformity theory, conformity pressure to manufacturing peer practices and improving environmental performance affects the firm's use of *GIs* (Derchi *et al.*, 2023). According to Chang *et al.* (2019), perceptions of the different *GIs*' motivations moderate the relationship between behavioral

intentions and promotion/prevention regulatory fit. The monetary green tax incentives have the most significant impact on the availability and investment in green commercial property (Onuoha *et al.*, 2018). In developing economies, there is a positive and significant association between SMEs' environmental incentives, green responsiveness and environmental performance (Rajapakse *et al.*, 2022).

2.5 Availability of capital (AoC)

Entrepreneurial businesses support the economy's core functions by creating jobs, fostering innovation and increasing output. The availability of different financial resources has had a positive effect in enhancing entrepreneurial propensity (Ho and Wong, 2007). According to Kim *et al.* (2006), personal financial resources are the significant entrepreneurial dynamic constructs in becoming an entrepreneur. These financial resources, which include wealth and household income, push individuals to become entrepreneurs. Access to capital helps to improve entrepreneurs' engagement in entrepreneurship (Hwang *et al.*, 2019). Likewise, access to social capital access has a positive and significant effect in enhancing entrepreneurial activities and supporting entrepreneurs to overcome resource constraints (Bauernschuster *et al.*, 2010). It endorses entrepreneurship only when supportive cultural capital is in place (Light and Dana, 2013). Soomro *et al.* (2018) suggest that psychological capital has a meaningful impact on entrepreneurs' entrepreneurial resilience. The availability of green human capital has a positive effect on remanufacturing operations performance (Bag and Gupta, 2020). Among rural women, financial, human, social and institutional capitals make a significant impact in reassuring women to become involved in entrepreneurial activities. This integration of capital factors improves women's entrepreneurial success (Kungwansupaphan and Leihaothabam, 2016). In Saudi Arabia, green capital, i.e. human structural and relational capital, has a positive and significant effect on performance (economic, environmental and social) (Abdelwahed *et al.*, 2022b).

2.6 Green entrepreneurial self-efficacy (GESE)

GESE refers to people's confidence that they can help to solve environmental problems and can demonstrate self-assurance in environmental protection activities. More specifically, GESE provides firms with a roadmap on how their employees' GESE may assist them in performing better in terms of the environment, economics and society (Guo, 2022). Entrepreneurial self-efficacy (ESE) partially mediates the link between lack of premeditation and lack of perseverance and intentions to become an entrepreneur (Tran *et al.*, 2023). According to Nowiński *et al.* (2019), among university students education, ESE has a positive impact on EI. The factors, such as self-efficacy and risk propensity, positively develop the link between the usage of social networking sites and green and sustainable EI (Hussain *et al.*, 2021). Likewise, ESE creates, also, the link between creativity, entrepreneurial mindset, entrepreneurial education and EI (Jiatong *et al.*, 2021). Chen *et al.* (2015) perceive that a green shared vision has a positive and direct effect on green creativity and via green mindfulness has a positive and indirect effect on GESE.

2.7 Green entrepreneurship (GE)

'Green' is frequently used to show either a move or step toward environmental sustainability. However, GE is one of the valuable underlying mechanisms which drives sustainability, and which completes innovation in entrepreneurship in an environmentally responsible way (Soomro *et al.*, 2020a, b). GE is a channel for environmental conservation and is closely associated with sustainable business practices (Ndubisi and Nair, 2009). According to Hwang *et al.* (2017) and Sarkar *et al.* (2021), the integration of green business determinations, which

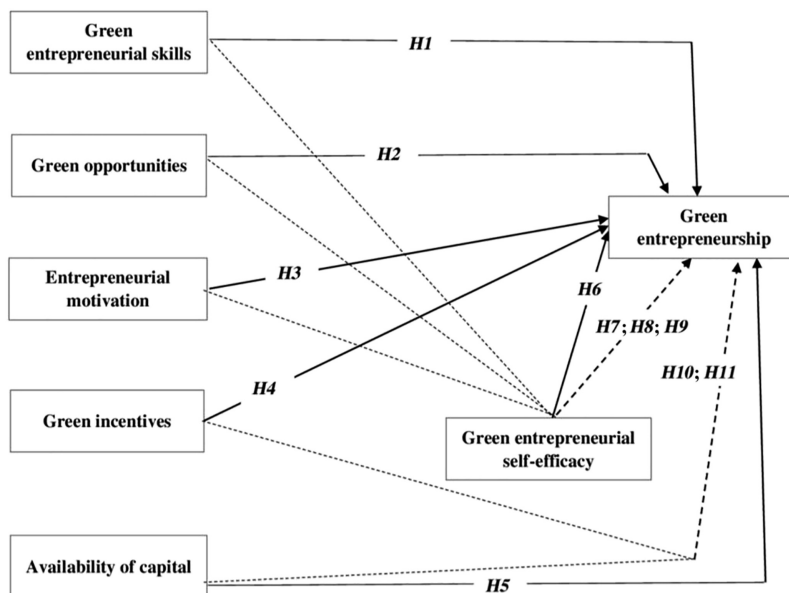
increases an organization's value and its value to investors, should be included in the organization's fundamental business operations. Similarly, *GE* leads to the management and dynamic balance between environmental and economic goals and with environmentally friendly and sustainable architecture can provide businesses with a bright future (Fallah and Soori, 2023). According to Parrish and Foxon (2009), *GE* can play a catalytic role in the collaborative dynamics of change in institutions, technology and corporate strategies. Customers have sought more environmentally friendly goods and services from green construction enterprises along with modifications to the national and global economic scenarios that encourage new kinds of entrepreneurship (Gibbs and O'Neill, 2012). *GE* is critical to creating new business opportunities in a circular economy that lead to sustainable development. *GE*'s strength can be enhanced by an attitude toward acceptance of new technology, social norms and culture, environmental regulations and research and development (R&D) innovation capability in a circular economy (Mondal et al., 2023). In Vietnam's business landscape, *GE* substantially brings about sustainable environmental and societal development (Tien et al., 2023). According to Vasilescu et al. (2023), *GE*'s potential and its drivers play a highly prominent role in overcoming the challenges of green growth and economic and in achieving sustainable development goals. In Pakistan, business culture swiftly shifts toward *GE* and accentuates ecological sustainability. Economic growth can be predicted through sustainable entrepreneurship, environmental degradation and climate change (Yasir et al., 2023).

Consequently, there are some gaps in the above literature that need to be filled. Previous studies have concentrated mainly on the direct effects of factors such as *GES*, entrepreneurial competency, *GESE*, entrepreneurial education, *GOs*, *EI*, innovation, *EM*, entrepreneurial tasks, *GLs*, *AoC*, green performance, entrepreneurial competencies, green innovations, green responsiveness and capital (human, social and psychological) (Rajabi et al., 2018; Bag and Gupta, 2020; Rajapakse et al., 2022; Paliwal et al., 2022; Lingappa et al., 2023). However, in the direct or indirect presence of *GESE*, these associations are not concentrated enough (Nowiński et al., 2019; Soomro et al., 2020a, b; Hussain et al., 2021; Jiatong et al., 2021; Mia et al., 2022; Li and Kang, 2022; Tran et al., 2023; Lingappa et al., 2023; Al Shammre et al., 2023). Contextually, these associations need further investigation among Saudi Arabia's SMEs since these play a vital role in the country's economic development and well-being. In this domain, the AMO (ability, motivation and opportunity) theory-associated factors, i.e. skills, incentives, and entrepreneurship education, positively enhance *GE*. Furthermore, AMO theory is a massive predictor of *GE* through skills, entrepreneurship education and incentives (Mia et al., 2022). McCaffrey (2014) claims that the implications of the theory on entrepreneurial incentives for entrepreneurs identify several potential solutions to the problems. Therefore, based on these existing gaps and relationships and the support of AMO theory, the researchers devised a model (see Figure 1) to confirm the position in respect of Saudi Arabia's SMEs.

3. Development of hypotheses

3.1 Green entrepreneurial skills (*GES*) and green entrepreneurship (*GE*)

Entrepreneurial ability, competencies, capabilities and entrepreneurial skills are essential pillars in developing and promoting entrepreneurship in the 21st century (Pennetta et al., 2023). The factors, such as entrepreneurial skills and social support, remain the significant enablers of *EI* among individuals (Farooq, 2018). In universities, students develop better entrepreneurial skills for self-employment (Reyad et al., 2020). According to Al Mamun et al. (2019), entrepreneurial competency can be developed through networking, market orientation and entrepreneurial skills, and these outcomes lead toward substantial enterprise performance. In business, entrepreneurial skills, such as innovation, risk-taking,



Source(s): Developed by the researchers

Figure 1.
Conceptual model

problem-solving and critical thinking, are significant predictors of an individual starting a business (Reyad *et al.*, 2019). In a similar dimension, Fabregá *et al.* (2020) demonstrate that there is a positive connection between innovation, the entrepreneurial skill of self-consciousness and environmental commitment. These associations bring and foster sustainability and sustainable development. From green perspectives, factors, such as entrepreneurship education, incentives and skills, have positive and significant effects on *GE*. However, the EI influences the importance of a *GE* strategy, which reassures the rise of social change (Mia *et al.*, 2022). Alvarez-Risco *et al.* (2021) demonstrate that an entrepreneur's ability to carry out *GE*, education development support and ESE have positive and significant effects in enhancing green EI. Green innovation performance is affected positively and significantly by factors such as internal green dynamic capabilities and managerial environmental concerns positively and significantly affected. In contrast, green innovation performance has a substantial impact on *GE* orientation and sustainable environmental performance (Meirun *et al.*, 2020). Likewise, among the younger generation, *GE* inclinations are positively and significantly affected by sustainability orientation and education. On the other hand, there are no significant associations between *GE* inclinations and self-efficacy (Soomro *et al.*, 2020a, b).

Consequently, the above literature confirms the positive association between *GES* and *GE* in several contexts and organizations. However, among Saudi Arabian SMEs, an investigation is needed. Therefore, we formulated the following hypothesis:

H1. *GES* are positive and significant predictors of Saudi Arabian SMEs' *GE*.

3.2 Green opportunities (*GOs*) and green entrepreneurship (*GE*)

Entrepreneurial opportunities play a massive role in the development of entrepreneurship (Fortunato and Alter, 2016). This outline of entrepreneurship highlights the critical concepts of opportunities, human action, learning, creativity and innovation (Styles and Seymour,

2006). In developing economies, opportunities are formidable barriers to execution and in exploiting opportunities for better environmental performance (Ahmed *et al.*, 2020). Among SMEs, the practice of *GE*, such as opportunities for *GE*, plays an influential role in business activities (Nordin and Hassan, 2019). According to AMO theory, *GE* is positively and significantly enhanced by factors such as abilities, motivation and opportunities. Moreover, AMO theory is a significant forecaster of incentives, skills and entrepreneurship education; ultimately, these are positive and statistically important factors in encouraging individuals toward *GE* (Mia *et al.*, 2022). According to Rizvi and Garg (2021), opportunities, green abilities and motivation are valuable constructs that play a vital role in enhancing the organization's environmental performance. Ghura *et al.* (2017) underline that, in terms of institutions, these play a moderating role between entrepreneurship opportunities and economic development. Likewise, Zampetakis and Kanelakis' (2010) findings demonstrate that entrepreneurs' personality traits of future social status, previous knowledge and level of education are significant interpreters of entrepreneurship opportunities. There is a positive and meaningful association between technical and policy opportunities and individuals' motivations to involve themselves in e-entrepreneurship (Li and Kang, 2022). Based on the positive association between *GOs* and *GE*, we formulated the following hypothesis to seek confirmation in the context of Saudi Arabian SMEs.

H2. *GOs* are positive and significant predictors of Saudi Arabian SMEs' *GE*.

3.3 Entrepreneurial motivation (EM) and green entrepreneurship (GE)

GE has emerged as a viable means of achieving social, economic and environmental sustainability. *EM* makes a positive contribution in enhancing green entrepreneurial behaviors (Li *et al.*, 2022). The COVID-19 pandemic has had a positive effect on college students' green EI through *GESE*, ecological values, optimism and social responsibility and the mediating role of green *EM* (Wang *et al.*, 2021). According to Lingappa *et al.* (2023), in a developing economy, opportunity motivation and necessity have positive effects on business performance. Participants in enterprise programs have greater *EM* and are more likely to start their own businesses. The association between *EM* and EI is mediated by factors, such as subjective norms, attitudes and perceived behavioral controls (Solesvik, 2013). Eijdenberg (2016) suggests that entrepreneurial orientation and studies in Western nations, which are used to design the *EM*, have minimal impact on both types of personal wealth. Entrepreneurship-intrinsic motivational constructs are more pertinent to college students' EI models. The most consistently steady individual motivation is being driven by a specific occupational passion to start a new business Belchior and Lyons (2022). In a similar dimension, Farhangmehr *et al.*'s (2016) empirical findings demonstrate *EM*'s positive predictive power in developing the emotional component and critical thinking, in this respect, instructors may help students to develop their entrepreneurial psychologies and social abilities. Likewise, in Japan and in the United States, there is a favorable relationship between motivations to achieve and customer and cost orientation. However, this is not the case in relation to technology orientation (Deshpandé *et al.*, 2013). In Saudi Arabia, green *EM* is the best predictor of *GE* and environmental performance. Knowledge sharing moderates these associations (green *EM* and green innovation) (Al Shammre *et al.*, 2023). In the same way, Wisanggeni *et al.*'s (2023) empirical findings highlight that *EM* has a positive and significant effect of on green EI. However, entrepreneurial orientation does not affect green EI.

Consequently, these findings confirm that *EM* has a positive effect on *GE* and EI in entrepreneurship. However, in the presence of *GES*, *GOs*, *GIs*, *GESE* and *AoC*, this needs to be confirmed in an integrated way. Therefore, we formulated the following hypothesis:

H3. EM is a positive and significant predictor of Saudi Arabian SMEs' GE.

3.4 Green incentives (GIs) and green entrepreneurship (GE)

GIs play a protagonist role in developing organizations' GE. Entrepreneurial activity and its sustainability depend on the efficacy and nature of the incentives' (Pacheco *et al.*, 2010). The spiritual and material incentives enhance extrinsic and intrinsic motivations and green creativity (Liu and Liu, 2023). On the other hand, Tuszynski and Stansel's (2018) findings underline that in terms of SMEs, there is a negative association between incentives and patent activity and small business establishments. From employing the AMO theory, Mia *et al.* (2022) claim that incentives, entrepreneurship education and skills have a positive and significant influence in promoting GE. According to McCaffrey (2014), the significance of entrepreneurial incentives impacts on the theory of the entrepreneur and identifies several potential solutions to the problems. These entrepreneurial incentives lead to the tendency to enhance entrepreneurial success. The female entrepreneurial spirit affects factors such as personal characteristics, entrepreneurial activities and motivation incentives (Apergis and Pekka-Economou, 2010). According to Nandanwar *et al.* (2010), incentives have a substantial effect on the willingness to successfully grow a firm. The achievement of organizational success is greatly influenced by monetary and nonmonetary incentive arrangements. Moreover, the nature and mix of incentives impacted on the organization's entrepreneurial environment. In SMEs, the valuable drivers of the circular economy are economic incentives, green incentives (GIs) and environmental commitment (Arsawan *et al.*, 2023).

Consequently, entrepreneurial movement and its sustainability depend on the robustness of the incentives. However, its role in GE is still in its infancy and more particularly in the context of Saudi Arabia's SMEs. Therefore, we formulated the following hypothesis:

H4. GIs are a positive and significant predictor of Saudi Arabian SMEs' GE.

3.5 Availability of capital (AoC) and green entrepreneurship (GE)

Recently, GE has become a significant factor in accomplishing competitive advantages and in ensuring the sustainability of firms, where human capital always remains the facilitator of prosperity, growth and progress. Human capital has a positive effect on business sustainability and GE (AlQershi *et al.*, 2023). Financial capital is an essential tool for entrepreneurs as they take on the task of creating businesses. Ho and Wong (2007) claim that the AoC or diverse financing sources are robust predictors of entrepreneurial propensity. According to Marshall and Samal (2006), the human and financial capital constructs affect entrepreneurs in both rural and urban settings. Among green entrepreneurs, potential venture capital signals investors' intentions to invest in high-tech entrepreneurial firms (Mrkajic *et al.*, 2019). According to Turkina and Thai (2013), the social capital factors, such as institutional trust, interpersonal trust and networking, provide variations in countries' immigrant entrepreneurship. Likewise, the factors, such as entrepreneurial moral values, institutional framing and human entrepreneurship capital, are positive and significant predictors of entrepreneurship capital (Ntayi *et al.*, 2014). According to Aboobaker and Renjini (2020), human capital positively and significantly mediates the associations between entrepreneurial training programs and EI. Similarly, female entrepreneurship can be enhanced through constructs of human capital theory such as the area of education, level of education, work experience and previous training (Adom and Asare-Yeboah, 2016). However, according to Bayon *et al.* (2016), in terms of entrepreneurial self-confidence, human capital inputs and outputs are meaningful constructs, which have an enormous effect on decisions to achieve innovative opportunities. Likewise, structural forces and religious and socioeconomic factors contribute to overpowering cultural and social capital (Muhammad

et al., 2017). Consequently, in realizing *AoC*'s importance in promoting *GE*, we formulated the following hypothesis to confirm this in the context of Saudi Arabian SMEs:

H5. *AoC* is a positive and significant predictor of Saudi Arabian SMEs' *GE*.

3.6 Green entrepreneurial self-efficacy (*GESE*) and green entrepreneurship (*GE*)

The *GESE* has contributed to forming *EI* (Nowiński *et al.*, 2019). Both the entrepreneurial orientation and *GESE* have positive effects on green *EI* (Wisanggeni *et al.*, 2023). According to Wang *et al.* (2021), during the COVID-19 pandemic, *GESE* was positively affected by factors such as social responsibility and optimism. Likewise, country support for entrepreneurship positively and significantly affected *GESE*, while *GESE* predicts green *EI* (Alvarez-Risco *et al.*, 2021). Hussain *et al.*'s (2021) empirical findings demonstrate that, through the mediating effect of self-efficacy and risk propensity, social networking sites make a positive and substantial contribution to *GE* intentions. As claimed by Raharjo *et al.* (2023), there is empirical evidence of the connection between entrepreneurship education and *GESE*. An entrepreneur's self-efficacy is supposedly able to generate enormous entrepreneurial performance. According to Christensen *et al.* (2023), business students possess different types of *GESE* that adaptable cognition predicts well but changes depending on the sort of education. *GESE* is a positive predictor of *EI* to start up a business. Among the students, the significant enablers of *GESE* are the factors such as entrepreneurial experiences, entrepreneurial knowledge, risk propensity and instrumental readiness (Memon *et al.*, 2019). Likewise, *GESE* and *EI* are affected, also, by entrepreneurship knowledge, education and recognition of available opportunities (Soomro and Shah, 2022). In an Asian context, Soomro *et al.*'s (2020a, b) findings demonstrate that entrepreneurs' social networking and perceived *SE* have a positive and significant effect on entrepreneurs' entrepreneurial success. From the perspective of women's entrepreneurship, entrepreneurial knowledge and institutional support are significant enablers of women's *GESE* and venture performance (Abdelwahed *et al.*, 2022a).

Consequently, *GESE* plays a vital role in developing *GE* and *EI* both directly and indirectly. However, to further recognize its direct and indirect roles in the context of Saudi Arabian SMEs' *GE*, we formulated the following hypothesis:

H6. *GESE* is a positive and significant predictor of Saudi Arabian SMEs' *GE*.

3.7 Green entrepreneurial self-efficacy (*GESE*) as a mediator

Independent of social, economic, or geopolitical circumstances, entrepreneurship is a crucial driver of sustainable economic development. *GESE* has a good reputation and makes a significant contribution to the growth of businesses and SMEs (Eniola, 2020). *GESE* and green mindfulness are valuable factors which mediate the association between green transformational leadership and green performance, green creativity and green shared vision (Chen *et al.*, 2014, 2015). Kumar and Shukla's (2022) findings demonstrate that *GESE* plays a direct role in developing *EI*. Moreover, mediation analysis through bootstrapping method shows *GESE*'s mediating role between proactivity and *EI*. Likewise, through the partial mediating effect of subjective norms toward entrepreneurship and entrepreneurial outcome expectations, there is a positive and significant association between *GESE* and *EI* (Santos and Liguori, 2020). According to Alarjani *et al.* (2020), *GESE* and the institutional environment predict the successful implementation of efficacious entrepreneurship-based Saudi Arabian SMEs. Hussain *et al.*'s (2021) findings confirm the existence of a significant positive connection between green *EI* and social networking sites with the mediating support of *GESE* and risk propensity. According to Alvarez-Risco *et al.* (2021), there is a positive and significant connection between *GESE* and *EI*. *GESE* has a positive impact on green

innovation. Moreover, the study's findings do not confirm the moderating effect of the green knowledge-sharing culture in developing the connection between *GESE* and green innovation in SMEs (Guo, 2022). Through *GESE*, country support for entrepreneurship and institutional support for developing entrepreneurship both make a positive and significant impact on green EI (Robayo-Acuña *et al.*, 2023). In the same vein, Nowiński *et al.*'s (2019) seminal work demonstrates that entrepreneurial education has an indirect effect on EI. Furthermore, it is proven that *GESE* plays a mediating role between planning, marshalling activities and EI. Consequently, to further validate its mediating role, we formulated the following hypotheses in relation to Saudi Arabian SMEs' *GE*:

- H7. *GESE* mediates the relationship between GES and *GE*.
- H8. *GESE* mediates the relationship between GOs and *GE*.
- H9. *GESE* mediates the relationship between EM and *GE*.
- H10. *GESE* mediates the relationship between GIs and *GE*.
- H11. *GESE* mediates the relationship between AoC and *GE*.

4. Methods

4.1 Survey strategy and samples

Entrepreneurship has significantly influenced Saudi Arabia's effective resource management, created both a self-sufficient community and employment opportunities. Entrepreneurs are valuable assets who are vital to economic development (Kayed and Hassan, 2013). *GE* brings healthy, sustainable development (Johnson and Schaltegger, 2020). We applied quantitative methods due to their validity and reliability through numbers, logic and an objective stance (Heale and Twycross, 2015). From the *GE* perspective, several scholars, like Rajabi *et al.* (2018), Soomro *et al.* (2020a, b), Rajapakse *et al.* (2022), Paliwal *et al.* (2022) and Lingappa *et al.* (2023), have applied the quantitative assessment with numerous factors to investigate *GE*. We applied Analysis of Moment Structures (AMOS) version 26.0 software since it offered several capabilities and features that eased robust statistical modeling (Chatterjee *et al.*, 2021). Moreover, AMOS provides, also, a comprehensive and inclusive set of tools to construct and estimate complex structural equation models. Simultaneously, it allows researchers to inspect measurement and structural models (Harrigan *et al.*, 2010; Purwanto, 2023).

We focused on Saudi Arabian SMEs due to their active role in the country's development (Koe *et al.*, 2015). Such SMEs have a solid track record of stabilizing and boosting the nation's economic growth and, consequently, producing long-term employment (Abdelwahed *et al.*, 2022b). SMEs have a solid reputation in the Arab world for solving the difficulties of creating jobs and diversifying economies. Access to capital, productive capability and a supportive business climate have helped Saudi Arabian SMEs to develop quickly (WEF, 2018; Blancher *et al.*, 2019). We concentrated on such SMEs where the employees were this study's respondents. Saudi Vision 2030s key objective is to enhance SMEs' contribution to the nation's GDP from 20% to 35% by 2030 (Alwakid *et al.*, 2021). At the end of June 2022, there were 892,063 registered SMEs in Saudi Arabia; this represented a 25.6% increase over the fourth quarter of 2021 and indicated their phenomenal development in 2022. We targeted the SMEs, located in Riyadh and Makkah since these are the most desirable locations for startup businesses and accounted respectively for 35.4% and 21% of the Saudi Arabian SMEs (GBO, 2023). In terms of *GE*, Saudi Arabia has initiated efforts toward becoming an ecologically friendly society. Therefore, there is a pressing need to examine the factors that may support the development of *GE* among Saudi Arabian SMEs. We collected the data in the

period from April 2022 to November 2022. Initially, we distributed 580 samples to various Saudi Arabian SMEs and received back 335 samples in a raw shape. This represented a 57% response rate. While recording the data, we found one unsuitable (outlier) case and, therefore, excluded it. Thereafter, we analyzed 334 valid cases.

4.2 Insurance of reliability and validity

We conducted a pilot study to ensure the questionnaire's assumptions (reliability and validity) (Arain *et al.*, 2010) since this enabled us to determine the questionnaire's reliability. In simple terms, the pilot study enabled us to determine the preciseness of our methods and if it would be easy to replicate our study using a larger sample replicate (Pearson *et al.*, 2020). Therefore, we collected responses from 20 respondents, and we ensured the questionnaire's reliability by assessing Cronbach's alpha (α) to gauge the internal consistency among the scale items. We observed the overall alpha of the instrument to be 0.787, and we found, also, that the alphas for the individual factors were within the acceptable ranges (>0.70) (Hair *et al.*, 2019). In addition, we conducted the factor loadings to determine the correlation of the items with their related variables. We found these to be above 0.70 (Hair *et al.*, 2019) for most items, while some items appeared in cross-loading we expected them to fall within acceptable ranges in the full-scale data.

Turning to the validity of the instrument, we ensured the face validity and content validity by sending the surveys to university professors, who were experts and very knowledgeable about the latest research trends and were experts in developing questionnaires. We also received feedback from study units on the survey. Consequently, we slightly modified the design and content of the items and, having done so, we launched a reliable and valid questionnaire to collect large-scale data from this study's respondents.

4.3 Data collection modes

We used a survey questionnaire to collect the data because it is a reliable and well-respected tool for social science research when obtaining data on knowledge, perceptions, and typical attitudes and behaviors (Bulmer, 2004). We employed convenience sampling. This ensured easy access to the respondents who were willing to participate in this study at a given time (Stratton, 2021). We targeted the employees of Saudi Arabian SMEs. By using the convenience sampling technique (Etikan *et al.*, 2016) to collect the data, this study's respondents were easily reachable. We applied both online and offline means to collect their responses.

In recognition of the respondents' ethical values, we explained this study's purpose and goals. We focused, also, on their privacy and, in addition to obtaining their consent to participate in this study. Before distributing the questionnaire, we assured them, also, of the confidentiality of their responses (Kelley *et al.*, 2003). In addition, we assured them that they would remain anonymous and that the survey results would only be utilized for the purposes of this intended research.

4.4 Measures

We adopted six items from Bakari (2013) to measure *GES*. The sample item of the scale is "You have skills in green management."

We adopted five items from Bakari (2013) to assess the *GOs* factor. The sample item of the scale is "There are no entry barriers into the market I serve."

We adopted ten items from Bakari (2013) to assess the *EM* factor. The sample item of the scale is "Direct contribution to the success of a company."

We used ten items to evaluate *GIs*. The sample item of the scale is "The taxation system favours green business activity."

We adopted items from Bakari (2013) to assess *GIs*. Similarly, we adopted seven items from Bakari (2013) to gauge *AoC*. The sample item of the scale is “There is a fund set for green entrepreneurship.”

We adopted three items from Hockerts (2015) to measure *GESE*. The sample item of the scale is “I believe that if I do it with my heart, I can contribute to the environment.”

Finally, we adopted fifteen items from Bakari (2013) to measure *GE*. The sample item of the scale is “There is support for green product innovation.”

We used a five-point Likert scale to evaluate all the items. The Likert scale’s options are strongly agree = 1; agree = 2; neutral = 3; disagree = 4 and strongly disagree = 5.

5. Analysis

5.1 Respondents’ profile

The demographic data suggest that, when compared to women (14.37% or $n = 48$), most men (85.63% or $n = 286$) contributed to the study. Most respondents (41.32 or $n = 138$) were 31–40 years of age. 29.34% ($n = 98$) were 21–30 years of age; 19.76% ($n = 66$) were 41–50 years; and 6.59% ($n = 22$) were less than 20 years of age. Finally, only 2.99% ($n = 10$) were aged 51 and above. Turning to the respondents’ education, most respondents (46.71% or $n = 156$) had a diploma; 28.14% ($n = 94$) had a bachelor’s degree in education; and 20.96% ($n = 70$) had received secondary education. Small numbers of 2.99% ($n = 10$) and 1.20% ($n = 4$) were master’s and M.Phil/PhD holders, respectively. Having regard to the SMEs’ respondents, most were from the technical side (30.54 or $n = 102$); 23.36% ($n = 78$) were hybrid; and 18.56% ($n = 62$) were from the instructional side; 14.97% ($n = 50$) of the respondents were from functional SMEs and 12.57% ($n = 42$) were from sentinel SMEs (see Table 1).

	Category	Frequency	Percent
Gender	Male	286	85.63
	Female	48	14.37
	<i>Total</i>	334	100.0
Age [years]	<20	22	6.59
	21–30	98	29.34
	31–40	138	41.32
	41–50	66	19.76
	51 and >	10	2.99
	<i>Total</i>	334	100.0
Education	Secondary	70	20.96
	Diploma	156	46.71
	Bachelor	94	28.14
	Masters	10	2.99
	M.Phil/PhD	04	1.20
	<i>Total</i>	320	100.0
SMEs	Technical	102	30.54
	Hybrid	78	23.36
	Instructional	62	18.56
	Functional	50	14.97
	Sentinel	42	12.57
	<i>Total</i>	334	100.0

Source(s): Primary data

Table 1.
Respondents’ profile

5.2 Descriptive statistics and correlations

We conducted descriptive statistics to observe the trends of responses, distribution, data overview, patterns, and relationships (Fisher and Marshall, 2009). The mean scores suggest a maximum range for *GES* (3.662) and a minimum for *EM* (2.999). Likewise, the standard deviation values highlight a maximum range for *EM* (1.326) against a minimum range for *GOs* (1.021). Turning to the association among the constructs, the levels of significance are 0.05 and 0.01 respectively (see Table 2).

5.3 Measurement model

A factor is an essential tool which can be assessed through factor loadings. In the same way, it is noteworthy that the factor loadings of most items are greater than 0.70 with maximum scores for “gese1” (0.909) and minimum for “ge14” (0.777). These are regarded as meaningful loadings (Hair et al., 2019). On the other hand, some items, such as gese4, em8 em9, gis4, gis6, gis10, aoc3, aoc5, ge5, ge8, ge11 and ge15, were unable to achieve the required scores, namely, >0.70 (Hair et al., 2019) (see Table 3). Therefore, we omitted unloaded items from further analysis. In terms of composite reliability (CR), the rest of the factors, ranging from 0.701(*GE*) to 0.950 (*EM*), are above suggested values (0.70) (Borges et al., 2001) and. Likewise, we observed average variance extracted (AVE) values to gauge an identity among the factors. Consequently, these values have excellent ranges (>0.50) (Hair et al., 2019) between 0.501(*GESE*) to 0.826(*GIs*). Finally, with ranges between 0.799(*GIs*) to 0.877(*GES*) (see Table 3) we ensured the satisfactory scores of Cronbach’s alpha reliability of all factors above 0.70 (Taber, 2018).

5.4 Structural model

We applied path analysis through AMOS version 26.0. In respect of the direct paths, we found that all the independent variables had a positive and significant effect on the dependent variables. More specifically, the path analysis found that *GES*, *GOs*, *EM*, *GIs*, *AoC* and *GESE* had a positive and significant effect on *GE* (**H1=CR=5.043*****; **H2=CR=6.124*****; **H3=CR=5.987*****; **H4=CR=6.022*****; **H5=CR=4.333*****; **H6=CR= 5.672*****) (see Table 4 and Figure 2). Therefore, hypotheses **H1** to **H6** are accepted. Moreover, the path analysis for the indirect relationships shows that *GESE* has a mediating effect in developing the relationship between *GES* and *GE*; *GOs* and *GE*; *EM* and *GE*; *GIs* and *GE* and *AoC* and *GE* (**H7=CR=4.002*****; **H8=CR=5.321*****; **H9=CR=5.021*****; **H10=CR = 5.782*****; **H11=CR = 4.092*****) (see Table 5 and Figure 2). Therefore, hypotheses **H7** to **H11** are accepted.

Variables	Mean	Std. deviation	GE	GES	GOs	EM	GIs	AoC	GESE
GE	3.872	1.091	–						
GES	3.662	1.062	0.321**	–					
GOs	3.421	1.021	0.034**	0.392**	–				
EM	2.999	1.326	0.471**	0.127*	0.382**	–			
GIs	3.130	1.128	0.399**	0.182*	0.174*	0.312**	–		
AoC	3.382	1.272	0.231*	0.382**	0.444**	0.298**	0.333**	–	
GESE	3.492	1.118	0.417**	0.409**	0.315**	0.172*	0.379**	0.482**	–

Note(s): *Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level

GES, green entrepreneurial skills; GOs, green opportunities; EM, entrepreneurial motivation; GIs, green initiatives; AoC, availability of capital; GESE, green entrepreneurial self-efficacy; GE, green entrepreneurship

Source(s): Calculated by the authors

Table 2.
Descriptive statistics and correlation

Construct	Item code	Loadings	CR	AVE	α (alpha)	Green entrepreneurship			
Green entrepreneurial skills [GES]	ges1	0.878	0.838	0.509	0.877	1365			
	ges3	0.860							
	ges2	0.844							
	ges5	0.828							
	ges6	0.811							
	gos1	0.898							
Green opportunities [GOs]	gos2	0.857	0.845	0.521	0.805				
	gos3	0.847							
	gos4	0.840							
	gos5	0.828							
	em1	0.889							
	em3	0.878							
Entrepreneurial motivation (EM)	em2	0.861	0.950	0.730	0.856				
	em4	0.855							
	em5	0.842							
	em10	0.833							
	em7	0.819							
	em6	0.792							
	Green incentives [GIs]	gis1				0.882	0.792	0.826	0.799
		gis2				0.866			
		gis3				0.841			
		gis5				0.821			
gis7		0.813							
gis8		0.806							
gis9		0.783							
Availability of capital [AoC]		aoc1	0.890	0.854	0.539	0.813			
		aoc6	0.878						
	aoc7	0.869							
	aoc2	0.855							
	aoc4	0.849							
Green entrepreneurial self-efficacy [GESE]	gese1	0.909	0.705	0.501	0.855				
	gese2	0.908							
	gese3	0.899							
Green entrepreneurship (GE)	ge1	0.892	0.701	0.738	0.839				
	ge2	0.888							
	ge3	0.867							
	ge4	0.855							
	ge7	0.845							
	ge9	0.839							
	ge6	0.826							
	ge10	0.808							
	ge12	0.799							
	ge13	0.787							
	ge14	0.777							

Note(s): CR, composite reliability; AVE, average variance extracted; α , Cronbach's alpha

GES, green entrepreneurial skills; GOs, green opportunities; EM, entrepreneurial motivation; GIs, green initiatives; AoC, availability of capital; GESE, green entrepreneurial self-efficacy; GE, green entrepreneurship

Source(s): Authors' own calculation

Table 3.
Measurement of model

6. Discussion and conclusion

This study investigated the factors that affect Saudi Arabian SMEs' *GE* directly and through *GESE*. The findings show that *GES* has a positive and significant effect on *GE*. These findings are consistent with those of previous studies (Farooq, 2018; Reyad *et al.*, 2019, 2020;

H.No.	Relationships	Estimate β (path co-efficient)	SE	CR (t-value)	Decision
<i>H1</i>	GES \rightarrow GE	0.38	0.027	5.043***	✓
<i>H2</i>	GOs \rightarrow GE	0.47	0.049	6.124***	✓
<i>H3</i>	EM \rightarrow GE	0.44	0.058	5.987***	✓
<i>H4</i>	GIs \rightarrow GE	0.53	0.027	6.022***	✓
<i>H5</i>	AoC \rightarrow GE	0.36	0.026	4.333***	✓
<i>H6</i>	GESE \rightarrow GE	0.44	0.048	5.672***	✓

Note(s): SE, standard error; CR, critical ratio. *** $p < 0.001$; ✓, accepted

GES, green entrepreneurial skills; GOs, green opportunities; EM, entrepreneurial motivation; GIs, green initiatives; AoC, availability of capital; GESE, green entrepreneurial self-efficacy; GE, green entrepreneurship

Source(s): Authors' own estimation

Table 4.
Structural path (direct)

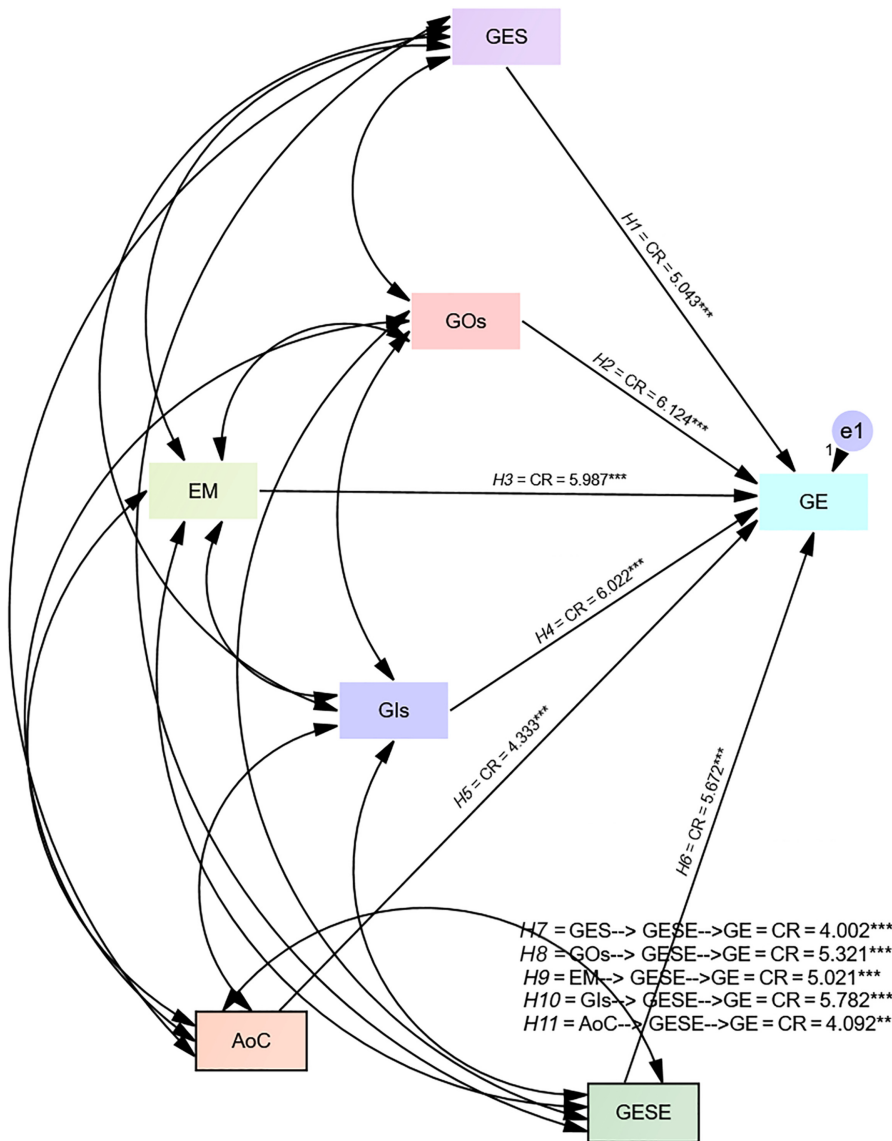
[Alvarez-Risco et al., 2021](#); [Mia et al., 2022](#); [Pennetta et al., 2023](#)). These findings demonstrate that Saudi Arabian SMEs train their staff in green business practices. Each has a team and abilities in environmental management. They are inclined, also, to train in green marketing strategies and company development. They can quickly identify opportunities for a green company.

Likewise, the path analysis has proved that *GOs*' have positive and significant effects on *GE*. These findings are consistent with those of numerous previous studies by such as [Zampetakis and Kanelakis \(2010\)](#), [Ghura et al. \(2017\)](#), [Nordin and Hassan \(2019\)](#), [Ahmed et al. \(2020\)](#), [Rizvi and Garg \(2021\)](#), [Li and Kang \(2022\)](#) and [Mia et al. \(2022\)](#). These outcomes demonstrate that there are no entry barriers to their markets. Green products and services are in great demand and there are many opportunities for green procurement. The public supports green initiatives since they have access to knowledge about green technologies.

This study's findings show, also, that *EM* has a positive and significant effect on *GE*. These findings are consistent with numerous previous studies ([Deshpandé et al., 2013](#); [Eijdenberg, 2016](#); [Wang et al., 2021](#); [Belchior and Lyons, 2022](#); [Lingappa et al., 2023](#)). These findings demonstrate that SMEs' employees make vital contributions to their SMEs being successful. In this regard, while they still need to deal with the difficulties of starting and expanding a firm, they are free to change the approaches to their employment. They aspire to become richer and to progress up the social scale through taking up the opportunities to continue their learning and to develop either new products or business concepts. They support the well-being of the area in which they reside.

Furthermore, this study's findings show that both *GIs* and *AoC* have positive and significant effects in developing *GE*. These findings are, also, consistent with those of previous studies ([Marshall and Samal, 2006](#); [Pacheco et al., 2010](#); [Nandanwar et al., 2010](#); [Tuszynski and Stansel, 2018](#); [Mrkajic et al., 2019](#); [Liu and Liu, 2023](#); [Arsawan et al., 2023](#); [AlQershi et al., 2023](#)). These findings demonstrate that the Saudi Arabian taxation system favors green business activities and that the Saudi Arabian Government's offers favorable incentives and the presence of management that values the environment. Therefore, these are expected to provide gains from green business endeavors and from market diversification. Due to their proximity to international markets seeking green products, these are successful ways to help green businesses by providing simple product rules for green business operations. More specifically, to promote *GE* financing, the Saudi Arabian Government has set up a fund for *GE* and, accordingly, loans are offered to support eco-friendly endeavors. There are several different funding options and green business owners can apply for low-interest financing.

In addition, the findings show that *GESE* has a positive and significant effect in developing *GE*. These findings are consistent with those of previous studies by such as



Note(s): CR, critical ratio. *** $p < 0.001$

GES, green entrepreneurial skills; GOs, green opportunities; EM, entrepreneurial motivation; GIs, green initiatives; AoC, availability of capital; GESE, green entrepreneurial self-efficacy; GE, green entrepreneurship

Source(s): Calculated by the researchers

Figure 2.
Path analysis

Nowiński *et al.* (2019), Memon *et al.* (2019), Wang *et al.* (2021), Hussain *et al.* (2021), Soomro and Shah (2022), Raharjo *et al.* (2023) and Christensen *et al.* (2023). This study's findings demonstrate, also, that Saudi Arabian SMEs' employees believe they can improve the

environment if they work hard and passionately and, in doing so, they may discover solutions to help to resolve environmental problems.

Finally, this study's findings demonstrate *GESE*'s significant contribution in reinforcing the positive connection between *GES*, *GOs*, *EM*, *GIs* and *AoC* and *GE*. Again, these findings are consistent with those of previous studies by such as *Nowiński et al. (2019)*, *Hussain et al. (2021)*, *Alvarez-Risco et al. (2021)*, *Guo (2022)* and *Robayo-Acuña et al. (2023)*.

In conclusion, this study's overall findings show that *GES*, *GOs*, *EM*, *GIs*, *AoC* and *GESE* have positive and significant effects on *GE*. Moreover, *GESE* is the substantial and positive mediator between *GES*, *GOs*, *EM*, *GIs*, *AoC* and *GE*. More specifically, due to green activities, SMEs' employees have increased production and business profit along with improving their own situations. With the access to green technologies, there is increasing expenditure on green procurement. There are trustworthy consulting companies to help green businesses with new innovative products and their environmentally friendly operations provide them with competitive advantages.

7. Contribution, limitations and future research

This study's findings provide a novel contribution in the shape of the model, which offers *GES*, *GOs*, *EM*, *GIs*, *AoC*, *GESE* and *GE* in an integrated way along with the direct and indirect presence of *GESE*. This study's findings help to generate green business opportunities, encourage training and skills in green business activities, and the development of green business planning. This study's findings support policymakers and SMEs to produce green products and services through identifying the massive opportunities for green procurement, green activities and information on green technology. This study's findings provide the Saudi Arabian Government, also, with guidelines to improve the taxation system by offering attractive incentives and lucrative ways of doing the green business activities. This study's findings inspire and enrich the individuals' beliefs to contribute to the environment and to help to resolve environmental issues. Moreover, this study's findings support reliable consultancy firms to boost innovative green products for green businesses. This study's findings add to our understanding of *GE* and its impact on the policies and practices relating to environmentally friendly products. Finally, the study's findings enrich the previous literature by adding an empirical confirmation of *GE*, management, and SMEs.

Contextually, this study focused on Saudi Arabian SMEs in Riyadh and Makkah. This study's findings are limited by using a quantitative method based on cross-sectional data. In this study, we utilized the AMO theory to strengthen the conceptual framework and used only a questionnaire to collect the primary data from these SMEs' employees. Consequently, this study's findings are based only on 334 samples.

H.No.	Relationships	Estimate β (path co-efficient)	SE	CR (t-value)	Decision
<i>H7</i>	<i>GES</i> → <i>GESE</i> → <i>GE</i>	0.36	0.022	4.002***	✓
<i>H8</i>	<i>GOs</i> → <i>GESE</i> → <i>GE</i>	0.43	0.042	5.321***	✓
<i>H9</i>	<i>EM</i> → <i>GESE</i> → <i>GE</i>	0.41	0.063	5.021***	✓
<i>H10</i>	<i>GIs</i> → <i>GESE</i> → <i>GE</i>	0.50	0.039	5.782***	✓
<i>H11</i>	<i>AoC</i> → <i>GESE</i> → <i>GE</i>	0.32	0.024	4.092***	✓

Note(s): SE, standard error; CR, critical ratio. *** $p < 0.001$; ✓, accepted

GES, green entrepreneurial skills; *GOs*, green opportunities; *EM*, entrepreneurial motivation; *GIs*, green initiatives; *AoC*, availability of capital; *GESE*, green entrepreneurial self-efficacy; *GE*, green entrepreneurship

Source(s): Authors' own estimation

Table 5.
Mediation effect
of *GESE*

Accordingly, we recommend that future studies use theories to support the conceptual framework and hypotheses. We recommend that factors, such as the need for achievement, EI, innovation, attitudes toward entrepreneurship, entrepreneurial orientation, be applied as mediators to further confirm their effects on *GE*. In addition, we recommend that future studies focus on other sectors such as education, services and large industries and that mixed methods be applied to further validate their findings. Finally, we recommend that a larger sample size be used to obtain reliable results.

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