

# Green innovation and Sustainable Development Goals in SMEs: the moderating role of government incentives

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## Abstract

**Purpose** – The aim of this research is to understand how government incentives (financial and non-financial) influence the relationship between green innovation and Sustainable Development Goals (SDGs) in SMEs.

**Design/methodology/approach** – To contribute to the literature, this research uses empirical evidence of 204 Pakistani small and medium-sized enterprises (SMEs) and tests the moderating role of government support between green innovation and SDGs.

**Findings** – The findings indicate that green innovation has a significant influence on SDGs, community development and environmental activities. The government support significantly strengthens the relationship between green innovation and environmental practices, while it does not moderate the path between green innovation and community development.

**Practical implications** – The research recommends SMEs focus on the adoption of green innovation and green technology to protect the environment and facilitate the community. Moreover, the research advises the government to assist SMEs financially and nonfinancially, so they will in turn help in the attainment of SDGs.

**Originality/value** – This research is the first attempt to assess the importance of green innovation in SDGs with a moderating role of government incentives in emerging SMEs. It provides several useful implications for policymaking.

**Keywords** Green innovation, Government support, Sustainable development goals, SMEs

**Paper type** Research paper

## Introduction

Sustainable Development Goals (SDGs) grabbed significant attention from researchers worldwide due to their role in economic growth, employment and environmental safety (Opoku, 2019; van Zanten and van Tulder, 2021). Several researchers have shown their interest in studying SDGs concerning business and non-business organizations (Anwar *et al.*, 2020; Shin *et al.*, 2020; Khattak, 2020). However, most of the studies have emphasized the role of large firms (Izzo *et al.*, 2020; Williams *et al.*, 2019), while small and medium-sized enterprises (SMEs) have been rarely debated. In this research, we emphasize on business firms to unleash how they facilitate governments in attaining SDGs.

The modern business approach emphasizes sustainability and environmental activities that were limited to maximizing shareholders' wealth in the traditional business goal



(Memon *et al.*, 2020; Pryor *et al.*, 2019). Considering the benefits of sustainability-oriented activities, many worldwide firms have initiated green activities (Wong *et al.*, 2018; Singh *et al.*, 2020). However, in emerging economies, many firms have scarce resources which hamper their participation in environmental and social practices (Anwar and Shah, 2020; Khattak, 2020). Therefore, they need external support e.g. government incentives and public finance to perform eco-activities (Huang *et al.*, 2019; Bai *et al.*, 2019). Moreover, governments have also shown a great interest in providing financial and nonfinancial support to business firms to gain SDGs. Despite having an extensive debate, what is not yet known is the role of green innovation in SDGs with a moderating role of government support. This research tries to unleash how government support moderates the path between green innovation and SDGs (community development and environmental practices) in Pakistani firms.

Green innovation is the key to ecological initiatives and is significantly related to social and environmental practices (Bai *et al.*, 2019). It enables firms to proactively grasp social and sustainable activities that can spur their profitability and performance (Zhang *et al.*, 2019a, b). For instance, Tang *et al.* (2018) claimed that firms should emphasize green innovation in order to adopt environmental and social initiatives. Similarly, ample evidence is existed in the European context that ensured the importance of greenness in the environment and sustainability (Demirel and Danisman, 2019; Costantini *et al.*, 2017; Kelliher *et al.*, 2020), while evidence in emerging and especially in Asian is lacking on the relationship between green innovation and SDGs.

There are several objectives of this research. First, businesses have now considered philanthropic activities as compulsory rather than obligatory (Khan *et al.*, 2020) because of their prominent role in sustainable performance. Hence, firms irrespective of their size and nature of trading activities are committed to adopting environmental and social activities (Badulescu *et al.*, 2018). Hence, they focus on green innovation to effectively perform environmental and social activities (Huang and Li, 2017). This research examines how green innovation influences the SDGs: community development and environmental activities. Second, as stated earlier, due to limited resources, many firms in emerging economies are unable to take interest in performing SDGs (Khattak, 2020), compelling them to beg for external support and incentives. Therefore, it is worthy to assess how government support moderates the relationship between green innovation and SDGs. Third, governments have initiated several schemes and programs for firms to attain SDGs. This research facilitates governments in how the incentives help in achieving their objectives. Moreover, this research also helps senior managers of the firms in recognizing possible ways and factors to practice social and environmental activities.

## Literature review and hypotheses

### *Green innovation and sustainable development goals*

Green innovation was initially introduced in the 1990s, demonstrating change from existing production technologies to the adoption of innovative products and processes under economic, environmental, social consideration and environmental regulations for the purpose to enhance sustainable industries and long-term production (Cleff and Rennings, 1999; OECD, 2009). Considering the literature, the term was used alternatively for ecological innovation, sustainable innovation, environmental innovation and eco-innovation in the field of technological, social and environmental research (Schiederig *et al.*, 2012). Considering the benefits of green innovation in sustainable factors and industrial growth, many businesses opted for it, resulting from great attention of research studies (Chiou *et al.*, 2011). The idea of green innovation was developed in combination with an environmental economic theory that focuses on environmental regulations, institutional regulations and innovation economic theory that influence start-up activities, business growth, expansion and innovative technology (Cleff and Rennings, 1999).

Both green innovation and environmentally sustainable development are relatively emerging terms (Albort-Morant *et al.*, 2016). Studies have emphasized the need for green innovation and eco-friendly technologies to facilitate environmental and social activities (Galdeano-Gómez *et al.*, 2013). Albort-Morant *et al.* (2016) demonstrated two major benefits of using environmentally friendly technologies in business: (1) economic benefits that can configure the competitive edge and (2) commercial benefit to produce environmentally friendly products. Organizations with an environmental management system as well as a quality management system are bound to follow and adopt green technologies and green innovation in their operational process (Cuerva *et al.*, 2014). In addition, environmental policies and regulations are considered fundamental parameters of green innovation in companies (De Medeiros *et al.*, 2014). Eco-friendly and environmentally committed organizations reduce environmental pollution and environmental degradation and boost the performance of green innovation (Chen *et al.*, 2016; Lopes *et al.*, 2017).

It is argued that green innovation in a firm environmental management system is associated with environmental and social performance (Adegbile *et al.*, 2017; Kammerer, 2009; Chen *et al.*, 2016). Green innovation also helps in building sustainable communities with both domestic energy consumption and personal mobility. Failing to address environmental issues in housing development and societies can harm communities and social protection. For instance, focusing on green technology and green innovation in operational activities attenuates the adverse influence of the environment and pollution on the communities and societies which leads to sustainable communities. Moreover, societies and communities also need a safe environment and cleaner production (Bohnsack *et al.*, 2014; Sanne, 2002). Considering the resource base view theory, we envisage that green process and product innovation are the key organizational resources to be used for gaining goodwill, environmental and social performance. Therefore:

- H1. Green innovation positively influences community development among the firms
- H2. Green innovation positively influences environmental activities among the firms

### **The moderating role of government support**

To achieve SDGs and green sustainable development, many governments have started special programs and subsidies schemes. For instance, the Chinese government has allocated a large number of R&D incentives in order to encourage green energy and intensive to promote green innovation, new eco-technology, environmental protection and optimize industrial structure. However, it is logical to say that most of the firms need external support and incentives to subsidize social and environmental activities (Monasterolo and Raberto, 2018). Government subsidies and public support are very crucial for sustainable development and green communities. For instance, in emerging economies, business ventures are unable to effectively enhance sustainable practices because they have limited resources (Khattak, 2020). In this context, government and public incentives encourage them to adopt and participate in sustainable and eco-friendly activities. In addition, government subsidies reduce R&D costs, green expenditures and help in spurring environmental activities (Květoň and Horák, 2018; Raz and Ovchinnikov, 2015). In most cases, government subsidies and incentives are provided for green activities, sustainable communities and reduction of environmental pollution. Governments are interested in the reduction of environmental pollution and emissions by investing in the industrial sector and firms (Li *et al.*, 2018).

Government intervention and regulations are important for ecological innovation and green practices. It attenuates environmental pressure directly, resulting in green development (Van Leeuwen and Mohnen, 2017; Dzonzi-Undi and Li, 2016). Public financial support enables enterprises to use the latest technology and equipment for sustainability and environmental activities (Owen *et al.*, 2018). The government provides incentives to the

enterprise to transform from a high-pollution process and high-energy consumption to green activities and sustainable practices. Governments and public bodies in emerging economies prefer investment in the industrial sector to configure green innovation and environmentally friendly activities (Paramati *et al.*, 2016). Regulatory pressure and government intervention significantly influence green activities and green innovation among enterprises (Berrone *et al.*, 2013). Governments provide funds and supportive material to promote and enhance green practices and green innovation in the business sector (Monasterolo and Raberto, 2018). When firms receive optimal incentives and support, they build an effective model of management to spur sustainable practices and eco-activities (Gerlach and Zheng, 2018).

Enterprises reduce their costs and expenditures through funds and subsidies, and thus, they are more willing to participate in social, environmental and green activities. Incentives and subsidies provide for green activities significantly enhance green innovation and green practices in SMEs (Wang *et al.*, 2017; Liao *et al.*, 2017). Moreover, Liu and Liao (2017) further state that green loan policies encourage firms towards investment in green production and environmental activities. It can also help them in adjusting poor production structure. It is argued that enterprises actively participate in community and social activities when they have a high level of government support and subsidies (Liao *et al.*, 2017; Tsai and Liao, 2017).

Green processes and green products do not only attenuate negative environmental impacts but also facilitate businesses in the reduction of waste and cost, resulting in increased financial and social performance (Weng *et al.*, 2015). Stakeholders perceive green innovation as an active strategy that facilitates organizations in attaining social performance, competitive advantage and environmental performance (Kratzer and Ammering, 2019). It is well-known that green innovation is significantly related to resource conservation and environmental improvement, it is a series of innovative activities that help in eco-friendly practices and sustainable development (Li *et al.*, 2020; Kunapatarawong and Martínez-Ros, 2016). However, in the presence of government subsidies and incentives, firms efficiently practice eco-practices, monitor resources, prevent pollution and encouraging sustainable production with minimum costs. Without subsidies and support, it is difficult to efficiently use green technologies for green development and environmental activities (Albort-Morant *et al.*, 2016).

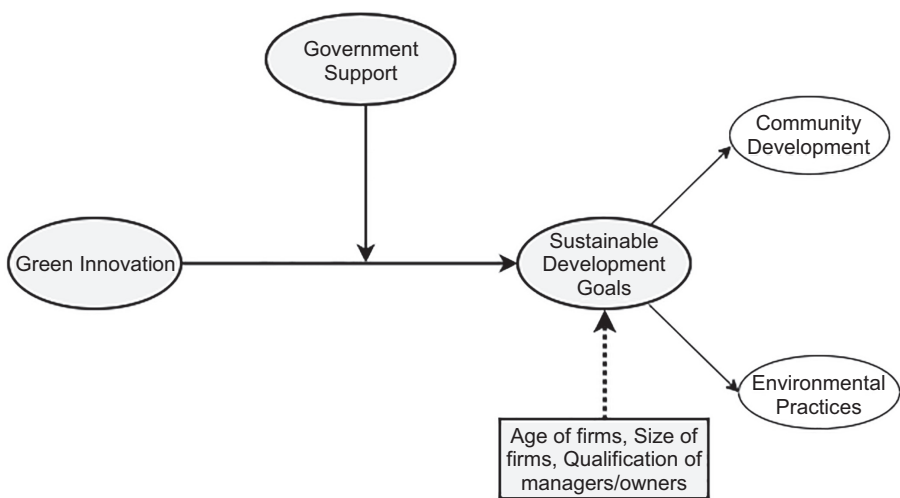
- H3. Government support moderates the relationship between green innovation and community development in such a way that the relationship will be stronger in case of firms have a high level of government support
- H3. Government support moderates the relationship between green innovation and environmental activities in such a way that the relationship will be stronger in case of firms have a high level of government support

Figure 1 illustrates the research model of the study.

## Methodology

### *Sample and data*

This research tests the influence of green innovation on SDGs with a moderating role of government support/assistance in Pakistani firms. We used a structured questionnaire for data collection because most of the firms have no formal data for green innovation and SDGs. In addition, several studies have used a self-reported approach while dealing with innovation (Anwar, 2018; Zhang *et al.*, 2019a, b) and SDGs in Pakistan (Khattak, 2020; Anwar *et al.*, 2020). The questionnaire was divided into three categories namely (1) cover letter where objectives of the research and secrecy of the data are ensured, (2) demographics information where educational and age of managers and size and age of the firms were asked and (3) main



**Figure 1.**  
Research model

variables where questions about green innovation, government support and SDGs were asked. We used an English version of the questionnaire because Pakistani business managers easily understand the language. Moreover, in most of the business documents, the English language is used. We randomly distributed 600 questionnaires to different firms operating in Peshawar, Rawalpindi and Islamabad (200 in each city). We requested top managers (e.g. CEOs, senior managers and owners) to fill the survey because of their understanding of firms' activities (see [Table 1](#)).

### Measurement of variables

**Government support:** It refers to the incentives and support provided and given by the government for practicing social, ecological and environmental activities ([Songling et al., 2018](#); [Ji and Miao, 2020](#)). [Jun et al. \(2021\)](#) state that financial and nonfinancial incentives are provided by the government to ensure the achievement of SDGs. In this study, we considered mixed items (having financial support and nonfinancial) to measure government support for SDGs that are adopted from. A sample item is "Government provides financial support (subsidies) for adopting green practices".

**Sustainable Development Goals:** There are 17 SDGs but are categorized into three: community development, environmental practices and human resource management/economics ([Wu, 2017](#); [López-Pérez et al., 2017](#)). However, in the context of business, most of the studies have emphasized community development and environmental practices ([Khattak, 2020](#); [Anwar et al., 2020](#)). Hence, we also kept ourselves limited to these goals and used eight items for community development and 12 items are environmental practices that are taken from [Khattak \(2020\)](#). A sample item of community development is "We offer internships and contribute to student training in different communities?" and for environmental activities "We integrate environmental considerations in your purchase decisions and the evaluation of your suppliers?".

**Green innovation:** It indicates all those innovative activities in which firms consider eco and green aspects ([Chen et al., 2012](#)). [Tang et al. \(2018\)](#). Studies have used green process and green product innovation ([Xie et al., 2019](#); [Chen et al., 2006](#); [Zhang et al., 2020](#)). In this research, we used six items for measuring green innovation that are tested and validated by [Jun et al. \(2021\)](#). A sample item indicates "Choosing materials that consume less energy in product development".

**Table 1.**  
Demographic  
information

Descriptions	Frequency	Percentage of total
<i>Industry type</i>		
1. Manufacturing	74	36.3
2. Trading	86	42.2
3. Services	44	21.6
<i>No of employees (size)</i>		
1. 20–50 employees	42	20.6
2. 51–100	28	13.7
3. 101–150	30	14.7
4. 151–200	55	27.0
5. 201–250	49	24.0
<i>Year since the firm started</i>		
1. 10 years and less	68	33.3
2. 11–20 years	56	27.5
3. 21 and above years	80	39.2
<i>Qualification of managers/owners</i>		
1. Intermediate and below	47	23.0
2. Bachelor	55	27.0
3. Master	81	39.7
4. PhD etc.	21	10.3
Total	204	100.0

Five-point Likert scale was used to measure the factors showing strongly disagree 1 to strongly agree 5.

### Control variables

Control variables help researchers in the reduction of endogeneity problem and spurious results. Hence, we controlled for educational level and age of the managers, age and size of the firms in this study. The analysis provided mixed results that are discussed in the regression analysis.

### Data analysis

To analyze the data, we used SmartPLS that has been considered useful for the following reasons;

- (1) It works effectively on small sample size.
- (2) Useful for abnormal data.
- (3) Recommended for a complex model and having a large number of items.
- (4) Provides the advantage of testing moderating that is not possible in AMOS.

Considering our model, we realized most of the advantages are relevant to our model that encouraged us in applying SmartPLS. The statistical tests and results are discussed below:

### Descriptive statistics

We executed descriptive statistics to check the mean ( $M$ ), standard deviation ( $S.D.$ ) and normality of the sample data. Our results show that community development has the highest  $M = 3.68$  and government support has the lowest  $M = 3.39$ . In addition, government support has the highest  $S.D = 0.69$  and community development has the lowest  $S.D = 0.51$ . The value

of skewness and kurtosis are satisfactory and confirm the normality of the data because the values of skewness and kurtosis are lower than the cutoff  $\pm 2$  (George, 2011) (see Table 2).

Common method bias

We performed Harman’s single factor test in SPSS to test the potential threat of common method variance. The test is applied in a cross-sectional data set to check the problem (MacKenzie and Podsakoff, 2012). We included all the items and executed the test. The results displayed four variables that have their eigenvalue greater than 1, and the first factor of these four displayed only 37.87% variance. Therefore, we ensure that the variance of the first factor is below 50% which approves the absence of common method bias in the sampled data.

Validity and reliability

In the first step of SmartPLS, we performed an algorithm to ensure item loading, validity and reliability (see Figure 2). All the items are used to assess the model as given in Figure 2 (structural model 1). We found that the model is fitted well in terms of SRMR = 0.052 and NFI = 0.81. The cross-loading displayed satisfactory results (above 0.70) and no overlapping is detected among the loadings (see Table 3).

Convergent validity provided desirable value (equal or above 0.50) for all the variables according to the direction of Hair et al. (2017). Similarly, Cronbach’s alpha also displayed desirable results (equal or above 0.70) as per the suggestion of Goldsmith et al. (1991). Finally, composite reliability gave adequate outputs (equal to or above 0.70) as suggested by Goldsmith et al. (1991). See Table 4 for validity and reliability.

Correlations

Correlation coefficients are executed via SPSS that are shown in Table 6. It reveals that there is a significant association between green innovation and community development ( $r = 0.455, p < 0.01$ ) and environmental activities ( $r = 0.506, p < 0.01$ ).

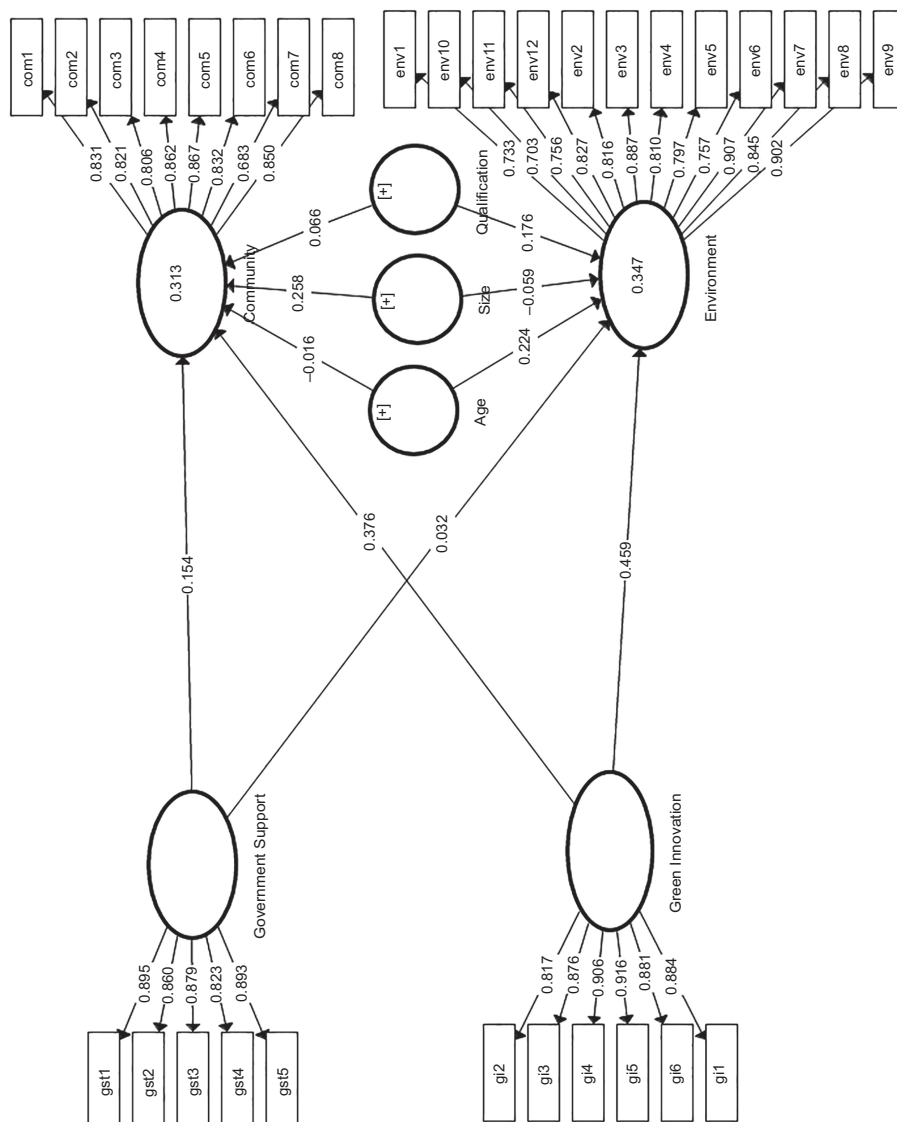
Structural model

Hypothesized model is tested via structural model, where a 500 resampling bootstrapping technique was performed (see Figure 3). In this model, green innovation is an independent, government support as a moderator, while community development and environmental activities are used as dependent variables in the presence of qualification of managers, age and size of the enterprises as controlled.

The results (see Table 7) indicate that green innovation has a significant influence on community development ( $\beta = 0.360, p < 0.05$ ) and environmental activities ( $\beta = 0.435, p < 0.05$ ), supporting H1 and H2, respectively. Government support as moderator has not a significant influence on community development ( $\beta = 0.075, p < 0.05$ ), which did not support H3 but has a significant influence on the environment ( $\beta = 0.105, p < 0.05$ ) which supported H4.

Table 2.  
Descriptive statistics

Variables	Minimum	Maximum	Mean	Sd	Skewness	Kurtosis
Green innovation	1.50	5.00	3.6340	0.55415	−0.531	1.980
Government support	1.00	5.00	3.3971	0.69777	−0.740	0.707
Community development	1.50	5.00	3.6857	0.51538	−0.631	3.373
Environmental activities	1.50	4.92	3.5127	0.52105	−0.917	1.756



**Figure 2.**  
Structural model 1  
(algorithm)



Table 3.  
Cross loadings

Items	Community development	Environmental practices	Government support	Green innovation
com1	0.831	0.205	0.247	0.360
com2	0.821	0.257	0.244	0.320
com3	0.806	0.208	0.260	0.392
com4	0.862	0.307	0.246	0.448
com5	0.867	0.272	0.283	0.365
com6	0.832	0.323	0.187	0.447
com7	0.683	0.221	0.270	0.324
com8	0.850	0.273	0.238	0.340
env1	0.237	0.733	0.212	0.420
env2	0.178	0.816	0.025	0.409
env3	0.289	0.887	0.184	0.487
env4	0.197	0.810	0.039	0.352
env5	0.234	0.797	0.173	0.438
env6	0.214	0.757	0.040	0.317
env7	0.295	0.907	0.155	0.491
env8	0.286	0.845	0.163	0.449
env9	0.277	0.902	0.071	0.435
env10	0.268	0.703	0.069	0.344
env11	0.324	0.756	0.168	0.395
env12	0.271	0.827	0.192	0.400
1	0.371	0.434	0.219	0.884
gi2	0.337	0.414	0.294	0.817
gi3	0.415	0.432	0.282	0.876
gi4	0.380	0.469	0.283	0.906
gi5	0.468	0.471	0.251	0.916
gi6	0.440	0.468	0.259	0.881
gst1	0.240	0.092	0.895	0.236
gst2	0.246	0.145	0.860	0.279
gst3	0.269	0.138	0.879	0.234
gst4	0.228	0.118	0.823	0.166
gst5	0.304	0.173	0.893	0.359

Table 4.  
Validity and reliability

Construct reliability and validity	Cronbach's alpha	Composite reliability	Average variance extracted
Community development	0.930	0.943	0.674
Environmental practices	0.953	0.959	0.663
Government support	0.920	0.940	0.758
Green innovation	0.942	0.954	0.775

In addition, the age of the enterprises has a significant influence on the environment but an insignificant influence on community development. Size has a significant influence on community development, while an insignificant influence on environmental activities. Qualification of managers and owners displays a significant role in environmental activities while insignificant for community development.

*R* square revealed that 31.30% variance in community development and 34.70% in environmental activities are explained by the green innovation while controlling for the qualification of managers/owners and age and size of the SMEs.

*F* square test (given in Table 5) displays the size effects in the model. In our results, green innovation has a moderate size effect on environmental activities while a weak effect on community development.

## Discussion and conclusion

The present study unleashed the importance of green innovation in SDGs (community development and environmental practices) with a moderating role of government support in the presence of controlling for the qualification of managers/owners and size and age of the SMEs. Previous studies have assessed the importance of green innovation in environmental activities, especially in European and advanced economies (Kastrinos and Weber, 2020; Ronzon and Sanjuán, 2020). However, the moderating role of government support between green innovation and SDGs in emerging SMEs has been poorly discussed. More precisely, studies have been ignored the role of governmental support in SDGs among Pakistani SMEs. This research extends the literature and contributes new evidence through empirical evidence.

The findings show that green innovation is a significant predictor of SDGs: community development and environmental activities. Our findings are related to Awan *et al.* (2019), who revealed that green innovation helps firms in practicing and adopting environmental and community practices. Our findings favor Albort-Morant *et al.* (2016), who claimed that green innovation provides two key benefits to enterprises namely social performance and economic performance. Moreover, findings are consistent with Zhang *et al.* (2019a, b), who scrutinized a significant relationship between technological and management innovation and sustainability among Pakistani SMEs.

Considering the moderating role of government support, our findings indicated that government support as a moderator does not significantly strengthen the path between green innovation and SDGs. Our findings do not support previous studies such as Li *et al.* (2018) and Tsai and Liao (2017), who claimed that governments provide incentives to the industrial sector for community development. However, our findings favor Anwar *et al.* (2020), who revealed that government financial incentives do not directly spur community development the management of resources mediates the relationship. It can be derived from the results that the government does not provide special incentives to the industrial sector for community

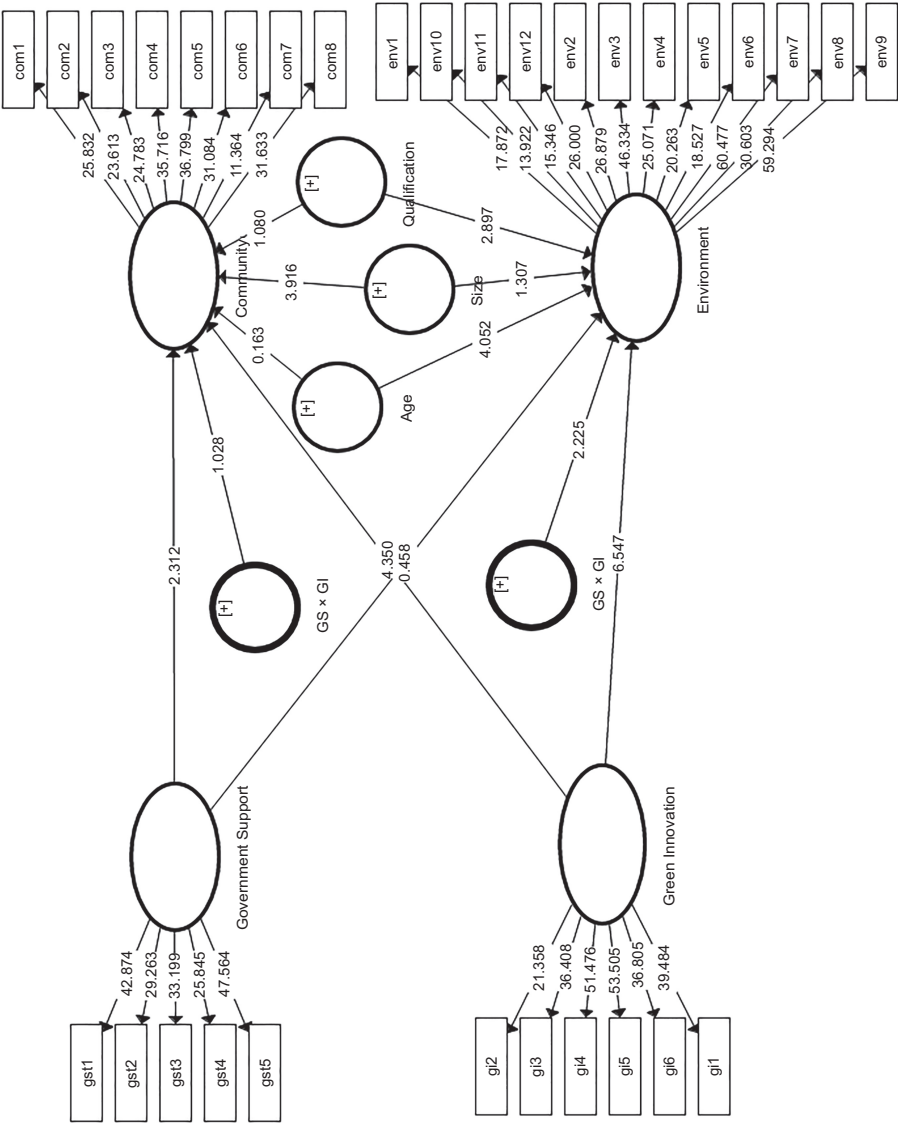
**Table 5.**  
F square test

Variables	Community development	Environmental practices
Age	0.001	0.074
Government support	0.031	0.001
Green innovation	0.181	0.283
Qualification	0.006	0.045
Size	0.093	0.005

Variables	Size	Age	Education	Green innovation	Govt. support	Community development	Environmental practices
Size	–						
Age	0.053	–					
Education	0.158*	0.119	–				
Green innovation	0.115	0.115	0.129	0.881			
Government support	0.131	–0.010	–0.018	0.294**	0.870		
Community	0.328**	0.047	0.148*	0.455**	0.297**	0.821	
Environment	0.039	0.294**	0.249**	0.506**	0.149*	0.315**	0.814

**Note(s):** \*. Correlation is significant at the 0.05 level (2-tailed). \*\*. Correlation is significant at the 0.01 level (2-tailed)

**Table 6.**  
Correlation coefficients



**Figure 3.**  
Structural model 2  
(bootstrapping)

**Table 7.**  
Hypotheses testing

Paths	$\beta$	<i>T</i> statistics	<i>p</i> values
Green innovation → community	0.360	4.350	0.000
Green innovation → environment	0.435	6.547	0.000
GS × GI → community	0.075	1.028	0.304
GS × GI → environment	0.105	2.225	0.027
Government support → community	0.152	2.312	0.021
Government support → environment	0.029	0.458	0.647
Age → community	−0.009	0.163	0.871
Age → environment	0.234	4.052	0.000
Size → community	0.254	3.916	0.000
Size → environment	−0.066	1.307	0.192
Qualification → community	0.066	1.080	0.281
Qualification → environment	0.177	2.897	0.004

**Note(s):** GS = Government support, GI = Green innovation

development which needs significant attention. Consequently, our findings display that government support significantly moderates the relationship between green innovation and environmental activities among SMEs. Our findings are related to [Guo \*et al.\* \(2018\)](#), who exposed that government incentives in R&D significantly enhance green innovation towards sustainability and environmental practices. Also, our findings are aligned with [Song \*et al.\* \(2020\)](#), who demonstrate that government incentives enhance green innovation, resulting in high environmental performance.

### Limitations and directions of future research

This research has a few limitations that can be beneficial for future researchers to address it. The first limitation of this research might be the nature of the data. For instance, cross-sectional data are criticized for being a common method variance problem. Hence, future researchers are encouraged towards longitudinal data and qualitative evidence to avoid the issue. Second, our analysis is limited to an emerging market Pakistan that may not be a good representative of other markets. We recommend the collection of data from other countries to articulate the results in a better way. Third, we test the role of green innovation in SDGs with a moderating role of government support. However, future researchers are encouraged to test other factors such as green technology, big data and managerial cognition as these can influence firms' commitment towards SDGs. For instance, [Ilyas \*et al.\* \(2020\)](#) claimed that top managers influence environmental activities and social practices in businesses. Moreover, in the future, studies can gather evidence from listed companies to unpack their role in SDGs. Similarly, researchers from European economies are encouraged to extend this model in their industrial sector.

### Implications for practice

This research has several worthwhile implications for senior managers, policymakers and governments. Our research revealed that green innovation significantly contributes to community development and environmental practices. It encourages firms to focus on the adoption of green innovation to help in the attainment of SDGs. Firms should opt for greenness in their activities and especially green technology can be adopted in order to facilitate communities and reduce the environmental pollution. However, the adoption of green technology and green innovative activities need sufficient resources ([Marín-Vinuesa \*et al.\*, 2020](#); [Cecere \*et al.\*, 2020](#)). Therefore, the majority of firms look for external support and in particular, they seek government incentives (financial and nonfinancial) to configure their social and

environmental activities (Khattak, 2020). Our research displays that government support significantly strengthens the significant positive path between green innovation and environmental practices. It suggests the government and public bodies facilitate SMEs in terms of financial and nonfinancial support for the reduction of environmental pollution and environmental safety. However, surprisingly, our findings show that government support does not moderate the relationship between green innovation and community development. This may argue that the government does not provide special incentives to the firms for community development. Our research recommends the public and government bodies initiate special programs and schemes for community development via SMEs. In general, our research advises top managers and owners of SMEs to build a favorable relationship with political and government bodies in order to access financial and nonfinancial incentives. It can alternatively motivate them towards practicing SDGs. The government also needs to interact with the SMEs and industrial sector and encourage them towards community and environmental practices.

### Conclusion

This research examines the impact of green innovation on SDGs: community development and environmental practices with the moderating role of government support. To test the hypothesized model, we use empirical evidence of 204 Pakistani SMEs (manufacturing, trading and services) and applied SmartPLS for analysis. The results displayed that green innovation significantly contributes to the SDGs: community development and environmental practices. The government support as a moderator significantly strengthens the path between green innovation and environmental activities, while it does not moderate the relationship between green innovation and community development. Our research encourages SMEs to focus on the adoption of green innovation to attain SDGs. Moreover, our findings recommend the government facilitate SMEs by providing financial and nonfinancial support, so they will be able to help in the achievement of SDGs.

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