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The Impact of Green Entrepreneurial Orientation on Firm Performance through Green Innovation: The Moderating Role of Strategic Green Marketing Orientation

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Abstract

Environmental protection has become a matter of market rivalry and competitive advantage. Therefore, the ideas of green entrepreneurial orientation, green innovation and green marketing, etc., highly concern from the last few decades in business research. Although the direct relationships between green entrepreneurial orientation (GEO), green innovation (GI) and firm performance (FP) have been investigated by different researchers but indirect relationship through GI are scant in literature. This study fills out the gap by investigating the impact of GEO on FP through GI and moderating role of strategic green marketing orientation (SGMO) in SMEs of Pakistan.

Keywords: Green entrepreneurial orientation (GEO), Firm performance (FP), Green innovation (GI), Green product innovation (GPDI), Green process innovation (GPSI), Strategic green marketing orientation (SGMO).

Introduction

The environmental damage is a serious global problem, which is starting from the industrial revolution. Since the late 1980s, environmental consciousness has become a source of market competition. Similarly, eco-friendly practices work as a sustainable competitive advantage (Ghodeswar & Kumar, 2014; Papadopoulos, Karagouni, Trigkas, & Platogianni, 2010). Therefore, the ideas of environmental protection, green management, GI and green marketing, etc., highly concern from the last few decades in environmental management research. The purpose of the environment management research is to build environmental policies and parameter to reduce environmental pollution and cure such environmental damages. For this reason, different international and national environmental regulations, standards and policies are made to protect the environment. For example, at an international level, Montreal Convention, Restriction of the Use of Certain Hazardous Substances in EEE (RoHS), and Waste Electronics and Electrical Equipment (WEEE) etc., and so on exist to protect the environment. Similarly, at the national level, the Government of Pakistan also build numerous policies to protect the environment. For example, the Pakistan Environment Protection Ordinance (1983), The Pakistan National Conservation Strategy (1993) and many other environmental regulations, standards and policies made to protect the environment. These international and national environmental regulations, standards and policies, and consciousness of the consumers toward the environment bring severe impacts on businesses in the world specifically in Pakistan. Therefore, organizations decide to differentiate themselves by meeting international and national environmental regulations, standards and policies, and to satisfy environmentally conscious customers to gain competitive advantage and increase their performance.

Despite the importance of environmental safety, the enterprises working in Pakistan practising several illegal and unethical activities during the manufacturing process that damage the environment badly (Asad, Haider, & Fatima, 2018). The enterprises specifically small and medium enterprises (SMEs) practising such illegal and unethical activities because of the low literacy rate, poor financial conditions, lake of entrepreneurial skill, top management orientation and unwillingness toward technology development and environmental management practices during strategic policy-making, inability to utilize resources efficiently, escalating operation cost, unpredictable public policies, and absence of infrastructural support (Haroon & Shariff, 2016). Due to non-compliance of such international and national laws, regulation and policies, the international market particularly the European market has stopped buying the products that made in Pakistan (Haroon & Shariff, 2016). That is the reason, the exports of Pakistani SMEs are constantly decreasing, and SMEs in Pakistan is experiencing a low development trap (Khawaja, 2006). The decrease in export means a decrease in performance. It means that the performance of SMEs in Pakistan is low, and there is a need to conduct a study to improve the performance of SMEs. Therefore, this study chooses the variables which are related to environment safety and develop a conceptual model for SMEs in Pakistan.

The variables used in this study are GEO, GI (GPDI and GPSI), and SGMO and FP. GI defined "as hardware or software innovation that is related to green products or processes, including the innovation in technologies that are involved in energy saving, pollution prevention, waste recycling, green product designs or corporate environmental management" (Chen & Liu, 2018; Chen & Chang, 2013). GI further divided into green product innovation (GPDI) and green process innovation (GPSI). GEO is an organizing marketing approach which empowers the firm to identify and achieve business opportunities. It can be defined as "a firm behaviour consists of green innovativeness, pro-activeness and risk-taking" (Miller, 1983; Covin & Miller, 2014; Jiang, Chai, Shao, & Feng, 2018). SGMO describes "as the extent to which an organization integrates the environmental imperative in its strategic marketing decisions" (Papadas, Avlonitis, Carrigan, & Piha, 2019). FP is "the capability of an organization to get maximum output through available resources to achieve organization goal and objective" (Onyimbo, 2018). So it reflects the degree to which a firm effectively attains its goal, which is closely connected to its competitive advantage in the marketplace (Chen & Liu, 2018).

According to the explanation of the variables, the relationships of the variables are supported by ecological modernization theory (EMT). EMT theory said that increase in FP should not affect the environment. EMT is a theory for ecological innovation, it has been presented as a potential answer for the contention between industrial development and environment safety (Murphy & Gouldson, 2000). EMT suggests that environmental issues might be decreased by expanding resource efficacy, improving sustainability while holding the basic system of capitalist production and consumption. Within this condition, environment safety isn't an 'issue' however an 'opportunity' (Dakup, 2018).

Furthermore, according to the literature review, the conceptual model of the study is not tested in the manufacturing sector of the SMEs working in Pakistan. Furthermore, some of the study variable's relationships are scant in literature. For example; the impact of GEO on FP through GI or simply the mediating role of GI between GEO and FP are rarely found in the literature.

Moreover, the objective of the study is; 1) to determine the impact of GEO on FP and GI (product and process). 2) To find the impact of GI (product and process) on FP. 3) To determine the mediating role of GI (product and process) between GEO and FP. 4) To find the moderating role of SGMO between bricolage and FP; GEO and FP.

Literature review

GEO

The start of green entrepreneurship model can be found back to 1960 when environment damage and industrialization encourage the establishment of regulation for environment protection (Thompson, Kiefer, & York, 2011). GEO is "consists of firm behaviour at risk-taking, innovative, competitive aggressiveness and autonomy" (Covin & Miller, 2014). Most of the scholar identified three dimensions of GEO, green innovativeness, risk-taking, and pro-activeness (Jiang et al., 2018). Risk-taking behaviour of entrepreneur shows the willingness of the entrepreneur to implement those project which has chances of failure. On the other hand, pro-activeness encourages the entrepreneur to take quick action. Innovativeness is the preference of firm to apply creative processes, action and developed a new mechanism through research and development to launch a new product (Hussain et al., 2017; Jiang et al., 2018). An organization which follows all of the three aspects of GEO would be in a better position to respond to the external environment.

GI

GI defined "as hardware or software innovation that is related to green products or processes, including the innovation in technologies that are involved in energy saving, pollution prevention, waste recycling, green product designs or corporate environmental management" (Chen & Liu, 2018; Chen & Chang, 2013). GI is a likeness of two broad concepts: environmental management and innovation. GI takes place when an organization engaging in innovation base activities and protecting the natural environment from damage. This type of innovation aims to improve environmental performance and gain a competitive advantage to increase FP (Dakup, 2018; Hashim, 2018).

FP

Organization performance is the capability of an organization to get maximum output through available resources to achieve organization goal and objective. Furthermore, organization performance can be divided into different categories, e.g. objective and subjective, financial and non-financial or both. Subjective performance is described by self-reporting while the objective is based on financial data (Hussain et al., 2017). Similarly, financial performance is measured through return on investment, return on sales, profit, cash flow, return on equity and earnings per share; while non-financial performance is measure through market-share, new product introduction, innovativeness, technological efficiency, marketing effectiveness and product quality (Bekele, 2018). From a strategic point of view firms that follow both financial and non-financial measures can achieve better performance in market (Onyimbo, 2018).

SGMO

The concept of green marketing starts in the late 1980s. From the advent of the green marketing concept, the academic researchers integrate environmental concerns in all domain of business. Currently, it has become a business philosophy which aimed is to achieve the economic objective of the business and satisfying the environmentally-conscious customer with minimum environment effect (Hussain et al., 2017; Li, Ye, Sheu, & Yang, 2018). SGMO "as the extent to which an organization integrates the environmental imperative in its strategic marketing decisions" (Papadas et al., 2019). In general, SGMO states the long-term business policies and top management actions focusing on corporate environmental strategy.

GEO vs. FP

Research in the field of entrepreneurship investigates that GEO improves FP (Yu, Nguyen, & Chen, 2016) because it enables the firm to act efficiently and effectivity, which is important for its survival (Herzallah, Gutiérrez-Gutiérrez, & Munoz Rosas, 2014). In like manner, many other researchers considering that GEO is important for FP (Migliori, Pittino, Consorti, & Lucianetti, 2019). Besides, Pratono, Darmasetiawan, Yudiarso, and Jeong, (2019); Solano Acosta, Herrero Crespo, and

Collado Agudo, (2018) also find that entrepreneurial orientation is a significant predictor of FP in terms of profitability and growth and competitive advantage of the firm. Hussain et al., (2017) develop the nexus and found that GEO results in improving FP. Similarly, Jiang et al. (2018) and Pratono et al. (2019) fond that GEO has a positive impact on firm performance. So from the literature, it is hypothesized that *H1: GEO has a positive impact on FP*

GEO vs. GI (Product and Process)

As discussed earlier, GEO is "consists of firm behaviour at risk-taking, innovativeness, competitive aggressiveness and autonomy" (Covin & Miller, 2014). These dimension of GEO enables a firm to take the risk and pro-actively utilize the updated technology for efficient utilization of the resources to produce green products and green processes (Teece, 2016). Furthermore, the use of green technology by the firm is the demand for the environmentally-conscious customer and also the policy of the governments (Demirel, Li, Rentocchini, & Tamvada, 2019). In this way, GEO can help firms to improve process efficiency, reduces waste, and reduces costs through the practice of GI (Jiang et al., 2018). Therefore, an entrepreneur that possesses GEO behaviour should practice GI. So it is hypothesized that *H2: GEO has a positive impact on GPSI. H3: GEO has a positive impact on GPDI.*

GI (Product and Process) vs. FP

Resource management, customer orientation, societal pressures, and regulatory policies are driving force toward a balance between economic growth and environmental sustainability. Therefore, the research between GI and FP has been extensively researched and there result indicates significant positive relation between GI and FP (Birkner & Máhr, 2016; Leitner, Warnke, & Rhomberg, 2016; Naidoo & Hoque, 2018; Nwachukwu, Chladkova, & Fadeyi, 2018; Reiche, de Zubielqui, & Boyle, 2016). Furthermore, those organizations that practice GI and utilize their resources efficiently as compare to their competitors have a competitive advantage on a competitor. The increase in competitive advantage also increases FP (Bekele, 2018; Makadok & Ross, 2013; Porter, 1991; Onyimbo, 2018). Similarly, other researchers also found the positive relationship between GI (Product and Process) and FP in different industry context using different mediating variables (Fernando, Chiappetta Jabbour, & Wah, 2019; Tariq, Badir, & Chonglerttham, 2019). This shows the indirect relationship of GI to FP through competitive advantage. On the other side, the direct relationship studied by the different researcher, and their results show that there is a positive relationship between GI and FP (Juniati, Saudi, Astuty, & Mutalib, 2019; Suryanto & Komalasari, 2019; Tariq et al., 2019). Similarly, other studies also investigate the positive relationship between GPDI and GPSI to the FP (Hügel, Kreutzer, & Rottke, 2019; Tang, Walsh, Lerner, Fitza, & Li, 2018; Zhang, Rong, & Ji, 2019). So it is hypothesized that *H4: GPDI has a positive impact on FP. H5: GPSI has a positive impact on FP.*

The mediating role of GI

As discussed earlier in literature, that GEO positively related to GPDI and GPSI (Demirel et al., 2019; Jiang et al., 2018; Teece, 2016). On the other hand, the GPDI and GPSI are positively related to FP (Birkner & Máhr, 2016; Leitner, Warnke, & Rhomberg, 2016; Naidoo & Hoque, 2018; Nwachukwu, Chladkova, & Fadeyi, 2018; Reiche, de Zubielqui, & Boyle, 2016). Similarly, other studies also investigate the positive relationship between GPDI and GPSI to FP (Hügel et al., 2019; Tang et al., 2018; Zhang et al., 2019). The positive relationship of independent variables with mediating variable and mediating variables with the dependent variable shows the mediating role of GI (product and process) between GEO and FP. So it is hypothesized that: *H6: GPDI mediates the relationship between green entrepreneurial orientation and FP. H7: GPSI mediates the relationship between GEO and FP.*

SGMO as a moderator

Furthermore, several studies investigate the relationship between SGMO and FP; GEO and FP directly (Amegbe et al., 2017; Bhattarai et al., 2019; Hussain et al., 2018; Li et al., 2018; Mishra, Choudhury, & Rao, 2019). The combined effect of both SGMO and GEO on FP are scarce (Lisboa, Skarmeas, & Saridakis, 2016). Only a few studies investigate that the organizational resources like SGMO and GEO collectively increase FP and competitive advantage (Jogaratnam, 2017; Lonial & Carter, 2015; Morgan, Anokhin, Kretinin, & Frishammar, 2015). Moreover, most studies show that the combined effect of SGMO and GEO on FP is high (Boso, Story, & Cadogan, 2013; Dhewanto & Sohal, 2015; Hernández-Linares, Kellermanns, & López-Fernández, 2018; Migliori et al., 2019). Therefore, this study investigates the moderating effect of SGMO between GEO and FP. So from the literature, it is hypothesized that: *H8: SGMO moderate the relationship between GEO and FP.*

Conceptual Model

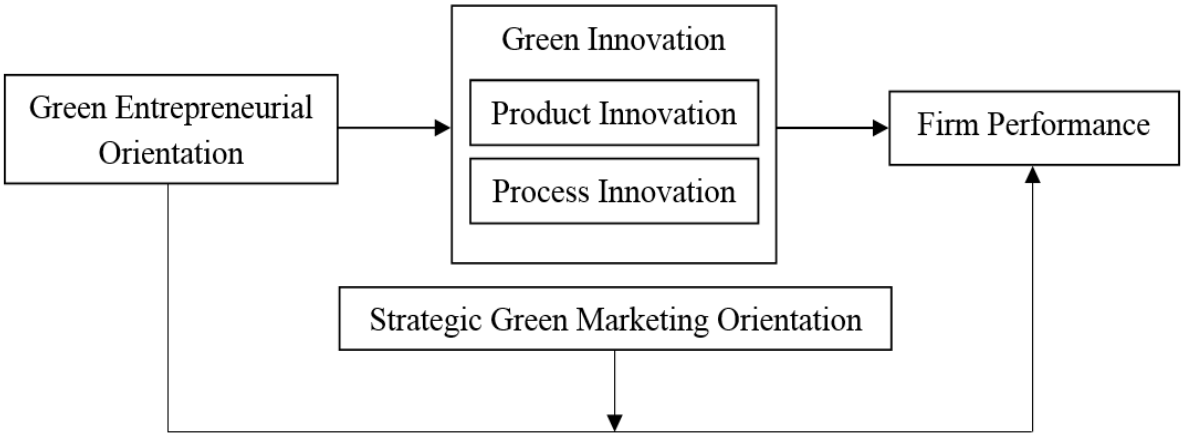

Figure 1. Conceptual Model

Methodology

The research study performed by using positivist research philosophy with quantitative-survey technique. Further, the type of investigation is the causal and cross-sectional study (One-time). The unit of analysis is SMEs working in Pakistan, and simple size is 280 SMEs because total items are 28 and according to Tanaka (1987) item response theory, 10 responses are enough for one item (10:1). Therefore, the sample size is 280 (28*10=280).

Data Analysis

The analyses investigate whether the proposed model is suitable or a good fit for SMEs working in Pakistan and to what extent the model can be applied and to what extent it is relevant for SMEs working in Pakistan. The primary examination segment of the data sheet has shown the biography of the respondents such as firm age, business nature, kind of business, size of business. Furthermore, reliability, validity, normality and correlation analysis also check through IBM SPSS version 23.

Correlation analysis

Correlation analysis done to investigate the relationships between variables and the nature of these associations is binary. SGMO, GPDI, GPSI and GEO have a positive relationship with the dependent variable that is FP and the values of the correlation coefficient are r = .236**, .187**, .123*, .161** $p<0.01$ and $p<0.05$.

Table 1. Magnitude and Direction of Correlation among Study Variables (N=280)

Sr.	Variables	1	2	3	4
1.	SGMO				
2.	GPDI	.143**			
3.	GPSI	.195**	.282**		
4.	GEO	.253**	.144**	.107*	
5.	FP	.283**	.187**	.123*	.161**

CFA Measurement model

The measurement model is developed to confirm the factor structures and this model is used to check the discriminant validity. This model provides the facility to the researcher to measure the association among the latent constructs and latent constructs are further measured through the observed variables. The recommended values for measurement model is X2/d.f. < 3, GFI (goodness of fit index) > 0.9, AGFI (adjusted goodness of fit index) > 0.80, RMSEA (root mean square error of approximation) < 0.08, RMR (root mean square residual) < 0.09, CFI (comparative fit index) > 0.95; > 0.90; > 0.80, and PCLOSE > 0.05. The values of the measurement model for current study is X2/d.f. 1.728, GFI 0.912, AGFI 0.895, RMSEA 0.041, RMR 0.070, CFI 0.934, and PCLOSE > 0.997.

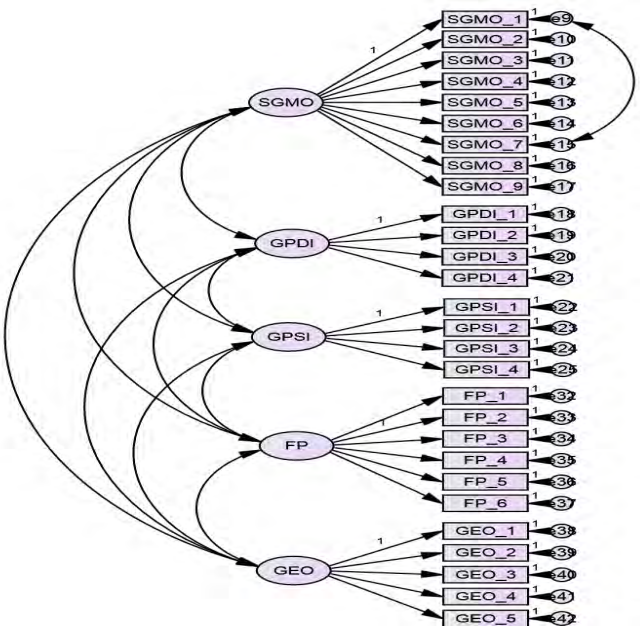

Figure 2. CFA Measurement model

Results

Hypothesis testing

The result shows that there is a positive signification relationship between GEO and FP; GEO and GPDI; GEO and GPSI; GPDI and FP but there not significant relationship between GPSI and FP.

Table 2. Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Hypothesis	
FP	<---	GEO	.168	.076	3.527	***	H1	Accepted
GPDI	<---	GEO	.258	.101	5.569	***	H2	Accepted
GPSI	<---	GEO	.151	.115	3.200	.001	H3	Accepted
FP	<---	GPDI	.184	.038	3.576	***	H4	Accepted
FP	<---	GPSI	.013	.033	.259	.796	H5	Rejected

1. Path- GEO-GPDI-FP

GI as a mediator, the seventh mediation of GI performs between GEO independent variable and FP dependent variable. The result shows in Table explain the hypothesis that is; GPDI mediates the relationship between GEO and FP.

According to table 3, the value of direct beta without a mediator is checked between the independent and dependent variable, which is β = 0.217 and its level of significance is p = 0.001. After that, the next step is to calculate the direct effect of the independent variable on the dependent variable in the presence of mediator and the beta value is calculated which is β = 0.169 and level of significance are p = 0.001. A further step is to calculate the indirect effect of the independent variable on the dependent variable through a mediator, which is called an indirect effect. The value of indirect effect is β = 0.049 & p = 0.001.

Table 3. Inference for Mediation

Hypothesis	Direct Beta without Mediator	Direct Beta with Mediator	Indirect Beta	Mediation type observed
GEO-GPDI-FP	β = .217, p = .001	β = .169, p = .001	β = .049, p = .001	Partial Mediation

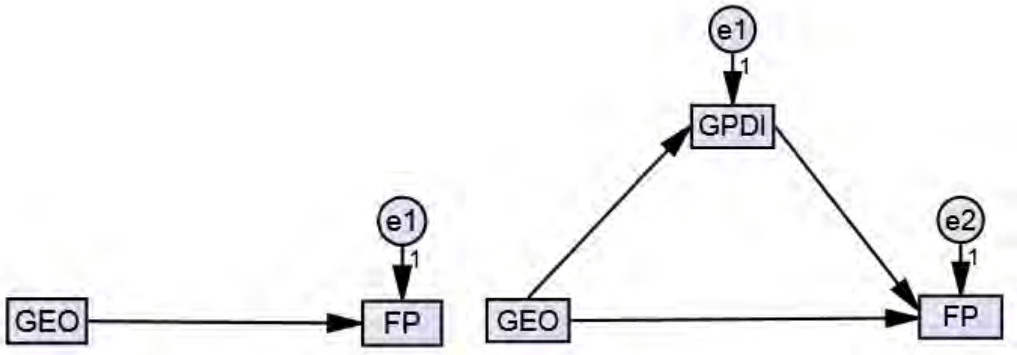

Figure 3. Path- GEO-GPDI-FP

In conclusion, the values indicate that both the direct effects (with the mediator and without mediator) are significance and an indirect effect through a mediator is also significant. It means that indirect effect through a mediator (GPDI) is also significant between GEO and FP. So, there is a partial mediating effect of GPDI between GEO and FP, and H6 is partially supported.

2. Path- GEO-GPSI-FP

GI as a mediator, the eight mediation of GI performs between GEO independent variable and FP dependent variable. The result shows in Table explain the hypothesis that is; GPSI mediates the relationship between GEO and FP.

According to table 4, the value of direct beta without a mediator is checked between the independent and dependent variable, which is β = 0.217 and its level of significance is p = 0.001. After that, the next step is to calculate the direct effect of the independent variable on the dependent variable in the presence of mediator and the beta value is calculated which is β = 0.205 and level of significance are p = 0.001. A further step is to calculate the indirect effect of the independent variable on the dependent variable through a mediator, which is called an indirect effect. The value of indirect effect is β = 0.012 & p = 0.038.

Table 4. Inference for Mediation

Hypothesis	Direct Beta without Mediator	Direct Beta with Mediator	Indirect Beta	Mediation type observed
GEO-GPSI-FP	β = .217, p = .001	β = .205, p = .001	β = .012, p = .038	Partial Mediation

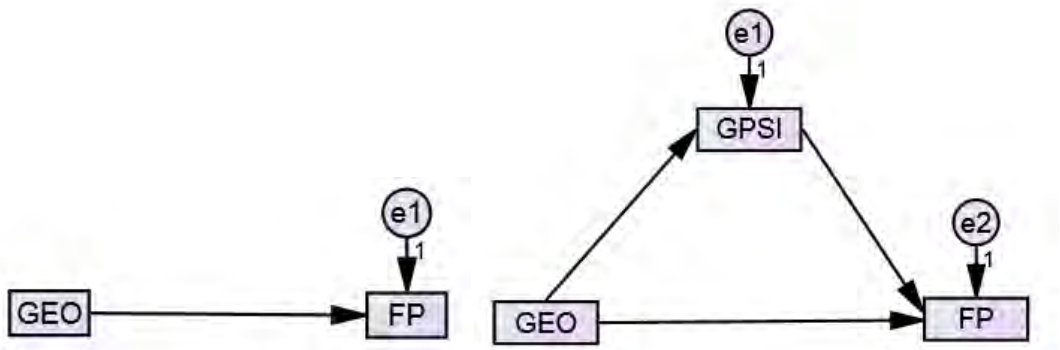

Figure 4. GEO-GPSI-FP

In conclusion, the values indicate that both the direct effects (with the mediator and without mediator) are significance and an indirect effect through a mediator is also significant. It means that indirect effect through a mediator (GPSI) is also significant between GEO and FP. So, there is a partial mediating effect of GPSI between GEO and FP, and H7 is partially supported.

Moderation: SGMO moderates between GEO and FP

The graph explains the moderating effect of SGMO between GEO and FP. The unstandardized regression coefficients (i.e., B) of all variables get through linear regression in SPSS. The first variable which is independent variable (GEO) whose unstandardized regression coefficients is B1 = 0.231 (p < .001). The second variable is moderator (SGMO) whose unstandardized regression coefficients value is B2 = 0.317 (p < .001). The third variable is the interaction of GEO and SGMO whose unstandardized regression coefficients value is B3 = 0.059 (p < .001). The results show that SGMO strengthens the positive relationship between GEO and FP. Hence, the relationship between GEO and FP is positive and significant at high and low SGMO, as is depicted by positive slops.

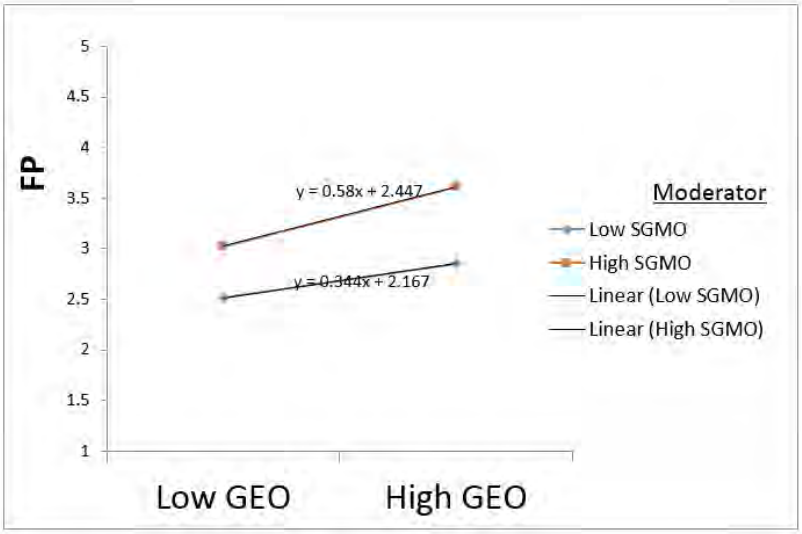

Figure 5. SGMO strengthens the positive relationship between GEO and FP

Conclusion

An entrepreneur can significantly get benefits from this study in many ways. For example, by applying the conceptual model of the study, an entrepreneur can increase their performance because all study variables positively affecting FP. Similarly, an entrepreneur can significantly get benefits in term of environmental protection because most of the study variables are related to the environment. For example, GEO, GI (product and process), and SGMO, all study variables mainly focus on environment pollution. Moreover, this study contributes to the field of a public administrator. For an instant, the main focus of this study is to increase SMEs performance without affecting the environment. So, a public administrator who plans to make environmental policies for the SMEs can get benefits from this research.

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