

The Moderating Role of Access to Physical Infrastructure on the Relationship between Entrepreneurial Orientation and Firm Performance

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Abstract

Present research study has investigated access to physical infrastructure role as moderator between an association of entrepreneurial orientation and subjective financial performance in small and medium enterprises located in Khyber Pakhtunkhwa. The study has collected data from the registered SME's owners, managers and senior officials of the manufacturing sector. Stratified random sampling technique were used to collect each respondent proportionately among the target sample of the current study. Six hundred and thirty eight questionnaire were distributed among respondents. Out of six hundred and thirty eight questionnaires, four hundred and twenty seven questionnaire were received. The three step procedure of Baron and Kenny (1983) were utilized to perform moderation analysis. Results of the present study revealed significant and affirmative association of entrepreneurial orientation and perceived financial performance. Moreover, results of moderation analysis showed, access to physical infrastructure positively as well as significantly moderate the relationship between firm level entrepreneurial orientation and perceived financial performance in small and medium Enterprise's in Khyber Pakhtunkhwa province.

Keywords: Entrepreneurial Orientation, Physical Infrastructural Access, (EE) Entrepreneurial Ecosystem, Perceived Firm Performance

1. Introduction

Entrepreneurial orientation has been considered one of the vigorous source of innovation and firm success (Gnizy *et al.*, 2014; Guo *et al.*, 2014; Hakala, 2011). Wiklund and Shepherd (2003) argued that firms having greater level of Entrepreneurial orientation perform well and become more competitive. Entrepreneurial orientation is the tendency of an organization to perform business activities innovatively, take business risks, embrace autonomy, become proactive to avail business opportunities and aggressively

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compete in an industry against the rivals (Anderson & Eshima, 2011; Gupta & Batra, 2016). The relationship between Entrepreneurial Orientation and Firm Performance is affirmed by many scholars (Lumpkin & Dess, 1996; Uchenna, 2019; Zainol & Ayadurai, 2011). However, this relationship is contingent on many exterior factors included in Entrepreneurship Ecosystem of the region (Lechner & Gudmundsson, 2014; Mason & Brown, 2014). Entrepreneurial Ecosystem consisting a set of distinct but interrelated factors which help to support entrepreneurship activities. These Entrepreneurial Ecosystem elements are Entrepreneurship societal Culture, Physical Infrastructural Access, Financial Funding, Governmental Assistance, Professional Infrastructure (Isenberg, 2011). Research scholars Hossain and Asheq (2019) and Hayat *et al.* (2019) performed a research study on linkage between entrepreneurial posture and SME perceived financial Performance in the developing countries i.e. Bangladesh and Pakistan respectively, and found a significant and positive association between them. The main purpose of current research study is to extend the knowledge of Entrepreneurial Orientation and Firm Performance relationship in the developing region of Khyber Pakhtunkhwa, Pakistan. In developed countries most of the research studies were performed conceptually and reviewed critically to assess the Entrepreneurial Ecosystem (Roundy, 2017; Alvedalen & Boschma, 2017), also Entrepreneurial Orientation as a construct were studied with other variables i.e. individual perceptions (Brettel *et al.*, 2013) and intention towards entrepreneurship (Neck & Greene, 2011). Moreover, According to Akhtar, Ismail and Hussain (2015) previous research studies included informal micro enterprises, large enterprises, as well as academic institutes (Khalid *et al.*, 2019). However, Access to Physical Infrastructure has been studied very scarcely as moderating variable between Entrepreneurial Orientation Firm Performance linkages in developing countries. This study is an attempt to fill the research gap contextually by including a formal registered manufacturing SME's physically exists to perform their commercial activities in 4 main industrial hubs of Khyber Pakhtunkhwa. In developing countries Entrepreneurial Orientation has been studied rarely (Buli, 2017). Theoretically, current research study is an attempt to fill the gap by using five dimensions to measured Entrepreneurial Orientation construct proposed by (Lumpkin & Dess, 1996) and also empirically examine the Entrepreneurial Ecosystem factor physical infrastructural access as moderating construct on an association between EO and SME subjective financial growth. Research scholars Mason and Brown (2014) argued that firm level entrepreneurship and perceived organization success depends on many contextual aspects contained in the Entrepreneurial Ecosystem of the particular country (Isenberg, 2011). Therefore, it is possible and imperative to examine the value relevance of physical infrastructural access as moderator between entrepreneurial orientation and subjective small medium enterprises' success empirically, in domestic region of Pakistan, Khyber Pakhtunkhwa. Current article is also an attempt to study quantitatively the influence of entrepreneurial ecosystem factor physical infrastructural access on association between an entrepreneurial posture and subjective financial performance of the firm. Entrepreneurial Ecosystem framework proposed by (Isenberg, 2011) is different in the native region of the Khyber Pakhtunkhwa province, so investigating the variable Physical Infrastructural access of an (EE) Entrepreneurial Ecosystem can be beneficial for the policy makers, academicians and stakeholders to make in depth comprehension

about the significance of local EE factor Physical infrastructural access on the association between EO and SME subjective financial Performance. Based on aforementioned discussion, following research objectives has been developed, the first objective of the current study is to establish an association between Entrepreneurial Orientation and SME's Perceived Performance. Secondly, to empirically examine moderating role of physical infrastructural access between entrepreneurial posture and organization subjective financial Performance. In continuation of the aforementioned research objectives, following research questions has also been established to strive for the answers, first , does any significant and positive association occurs between entrepreneurial orientation and SME subjective Performance? Does physical infrastructural access significantly moderate the relation between EO and small medium enterprise's subjective financial performance?

2. Literature Review

Entrepreneurship is constantly acknowledge as a substantial key source for societal as well as economic development (Zahra, 1999). Entrepreneurship activities creates employment, nurture innovation and provide unique set of products or offerings (Carree *et al.*, 2002; Naqi, 2003; Shailesh *et al.*, 2013). Entrepreneurship also act as a building block for new business creation (Mishra *et al.*, 2010). According to Naqi (2003) entrepreneurship activities support business firms, societies and countries to transform as well as creates new opportunities to attain financial growth. Entrepreneurial orientation is a firm level entrepreneurial activities of innovation, taking risk, autonomy, proactive and competitive aggressiveness to gain maximum competitive advantages against the competitors (Lumpkin & Dess, 1996; Zainol & Ayadurai, 2011). Entrepreneurial orientation is an outcome of internal resource utilization, therefore current research study follows resource based theory proposed by Barney (1991) which advised that organizations can achieve success by an effective use of its internal organizational resources. Moreover, current research study also aligned with the contingency theory which discussed that external environmental factors might affect the performance of an organization either positively or adversely (Lawrence & Lorsch, 1967).

2.1 Relationship between Entrepreneurial Orientation and Firm Performance

Entrepreneurial orientation is termed as firm level entrepreneurship approach towards autonomy, risk taking, innovation, proactive and competitive aggressiveness (Lumpkin & Dess, 1996). Research scholars (Anderson & Eshima 2011; Campbell *et al.*, 2011; Shan, Song & Ju, 2015) in their research studies established entrepreneurial orientation has a substantial contribution in organization success, growth and performance. The research study conducted in Nigerian small and medium size enterprises by the scholars Ibrahim and Mehmood (2016) has found significant affirmative bond between entrepreneurial orientation and small medium enterprises prosperity. Similarly, the research work conducted in Austria on 310 service sector organizations found significant link between EO and firm prosperity (Kraus, 2013). Based on the aforementioned literature the following Hypothesis has been developed,

H1: There is a significant positive relationship between Entrepreneurial Orientation and SME Perceived Performance

2.2 Moderating Influence of Physical Infrastructural Access on the Link between Firm Level Entrepreneurial Attitude and Organizational Performance

The adequate availability of physical infrastructure i.e. transportation, highways, power generation and telecommunication systems help facilitate SME's to boost their business performance (Audretsch *et al.*, 2015c). Existence of roads, dry ports, broadband services and railway tracks significantly supports SME's to perform their business activities effectively and also make possible an easily mobilization of their tangible resources at affordable cost (Belitski & Desai, 2015a). Accessible and inexpensive infrastructural support i.e. dedicated industrial zones, sewerage line systems, affordable internet services, airports, water supply systems help entrepreneurs and business owners to get quick market related information as well as required input resources for the improvement of business innovation and firm performance (Bennett, 2018; Squicciarini, 2017). Therefore, based on the literature discussed above, following hypothesis (H2) has been developed,

H2: Physical Infrastructural Access Significantly Moderate relationship between Entrepreneurial Orientation and Perceived SME's Performance

2.3 Conceptual Framework

Figure (1) below depicts a theoretical model of current research based on an aforementioned literature

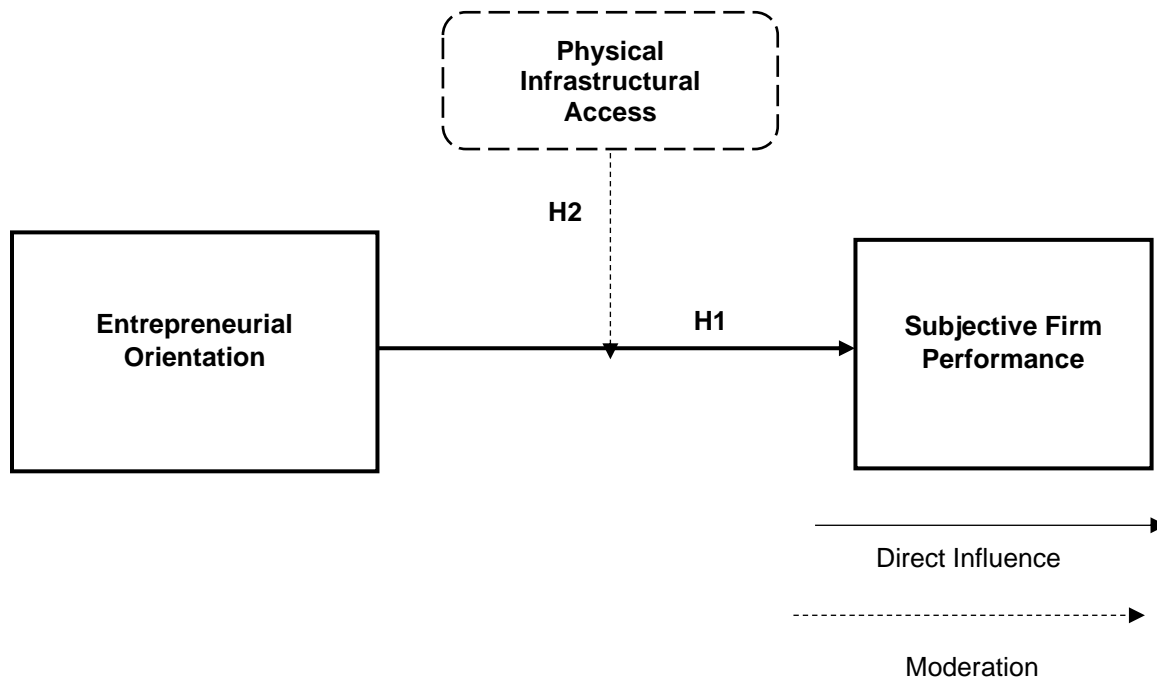


Figure 1 Conceptual Framework

3. Research Methodology

Present research is descriptive as well as survey based quantitative study. Research hypothesis were developed and tested by relevant statistical techniques. The total population of the present research were 16,412 individuals, employed in 405 manufacturing small and medium enterprises' formally registered in Khyber Pakhtunkhwa, which belongs to four industrial sectors (Khyber Pakhtunkhwa Industrial Policy, 2016; Small Medium Enterprise Development Authority, 2011). Sample frame of the study was 392 employees. Sample size was selected based on the Krejcie and Morgan (1970) sampling method. Stratified random sampling method were utilized to create stratum for each business sector (See Table 1) and then random sampling approach were used to obtained each sample respondent randomly from each stratum proportionately to represent all sectors equally (Sekaran, 2003). Total 638 questionnaires were distributed through personal visits, and email. Among 638 questionnaires, 427 questionnaires were received. Therefore, a response rate was 66.92%. 35 research instruments were rejected because they were improperly filled by the respondents, so finally 392 questionnaires were included for an enquiry. IBM AMOS version 23 were utilized to execute structural modeling to test relationship between EO and perceived financial performance as well as for measurement modeling for each construct separately to assess reliability and validity of the variables. A Seven-point Likert scale were employed to acquire data. Independent variable Entrepreneurial Orientation were measured by 21 items adapted from (Lumpkin & Dess, 1996, 2001). Moderating construct physical infrastructural access was assessed through five questions modified from (Bennett, 2018; Hechavaría & Ingram, 2018; Xu, 2010). Dependent variable Perceived Firm Performance were assessed by 7 items adapted from (Li & Zhang, 2007; Murphy *et al.*, 1996; Wang, 2016). Analysis of moderation executed through SPSS 23 by following Baron and Kenny (1986) three stage approach of moderating analysis.

Table 1 Summary of Sample Population Sector-wise

Employees (Sector wise)	Nh	n	N	f=n/N	nh=fNh
Food and beverage product	N1 2614	392	16412	0.024	62
Textile and apparels	N2 8983	392	16412	0.024	215
Wood related Product	N3 1338	392	16412	0.024	32
Ammunition, manufacturing & engineering	N4 3481	392	16412	0.024	83

3.1 Data Analysis and Results

In Table 2 shown below demonstrates the detailed demographic information about the respondents regarding Gender, Rank, Age, Education, work experience, industrial sectors, firm establishment in years and location.

Table 2 Demographic information

Variable	Frequency	Percentage	Valid Percentage
Gender			
Male	365	93.1	93.1
	27	6.9	6.9
Female	392	100	100
Total			
Rank	116	29.6	29.6
Owner	68	17.3	17.3
CEO	86	21.9	21.9
Senior manager	81	20.7	20.7
Manager	41	10.5	10.5
Officer	392	100	100
Total			
Age	79	20.2	20.2
20-29	142	36.2	36.2
30-39	126	32.1	32.1
40-49	42	10.7	10.7
50-59	3	0.8	0.8
60 & Above 60	392	100	100
Total			
Education	22	5.6	5.6
Matric	79	20.2	20.2
Intermediate	159	40.6	40.6
Bachelor	123	31.4	31.4
Master/MS	9	2.3	2.3
PhD	392	100	100
Total			
Experience	99	25.3	25.3
1-5	106	27.0	27.0
6-10	120	30.6	30.6
11-15	41	10.5	10.5
16-20	26	6.6	6.6
Above 20	392	100	100
Total			
Number of Employees	220	56.1	56.1
1-50	64	16.3	16.3
51-100	48	12.2	12.2
101-150	20	5.1	5.1
151-200	19	4.8	4.8
201-250	21	5.4	5.4
251 & Above	392	100	100
Total			
Employees Sector wise	62	15.81	15.81
Food and beverages	215	55.84	55.84
Textile & Leather	32	8.16	8.16
Wood & Wood Products	83	21.17	21.17
Engineering, Arms & other Manufacturing	392	100	100
Total			
Firm establishment (Years)	95	24.2	24.2
1-5	82	20.9	20.9
6-10	101	25.8	25.8
11-15	48	12.2	12.2
16-20	66	16.8	16.8

21 & Above Total	392	100	100
Location	209	53.3	53.3
Peshawar	66	16.8	16.8
Hattar	25	6.4	6.4
Risalpur	92	23.5	23.5
Gadoon Amazai	392	100	100
Total			

The values of Skewness, Kurtosis, VIF (<5) and Tolerance level (closer to 1) shown in the Table 3 depicts that data is normally distributed and multicollinearity among variables also does not exist (Hair *et al.*, 2006).

Table 3 Data Normality and Multicollinearity

Variable		Kurtosis	Tolerance	VIF
Skewness				
Entrepreneurial Orientation	-1.001	1.179	.787	1.271
Firm Performance	-1.049	1.192	-----	-----
Access to Physical Infrastructure	-1.003	0.925	.884	1.131

Reliability, convergent validity and discriminant validity of each construct was successfully achieved as shown in the Table 4 and Table 5 below respectively, which illustrates Cronbach Alpha value (>0.6) and hence constructs of the current study were reliable (Hair, Money, Page & Samouel, 2007), construct inter-items correlation value (AVE > 0.5) shows strong inter-item correlation of each construct (Kuei, 1999). Moreover, discriminant validity also achieved i.e. values representing AVE square root of each separate construct is larger than value of inter items correlation of other variable of the study (Sweeney & Soutar, 2001).

Table 4 Reliability and Validity of Constructs

Variable	No. of Items	Cronbach's Alpha	C.R	AVE
EO	21	0.908	0.885	0.608
Firm Performance	5	0.884	0.887	0.614
Physical Infrastructural Access	4	0.871	0.881	0.652

Table 5 Discriminant Validity

	Entrepreneurial Orientation	Firm performance	Physical Infrastructural
Access			
EO	(0.780)		
Firm Performance	0.578	(0.784)	
Physical Infrastructural Access	0.211	0.372	(0.807)

3.2 Measurement Model of Entrepreneurial Orientation

Construct measurement model for each variable was assessed through structural equation modeling in AMOS. Factor loading, AVE and C.R values of each variable of the study was successfully achieved (See Table 11). Values relevant to fit indices of the independent variable Entrepreneurial Orientation depicts that the measurement model of Entrepreneurial Orientation is fit model (see table 6). Each value of the fit indices are in acceptable range i.e. CMIN/DF (2.368), SRMR (.082), RMSEA (.059), GFI (.925) and CFI (.948).

Table 6 Summary of the attained fit indices: Entrepreneurial Orientation Construct

CMIN	DF	CMIN/DF	SRMR	RMSEA	GFI	CFI
355.218	150	2.368	.082	.059	.925	.948

Values relevant to the fit indices of the moderating construct physical infrastructural access depicts that measurement model physical infrastructural access is fit (See table 7). Each value of the fit indices are in acceptable range i.e. CMIN/DF (2.3), SRMR (.024), RMSEA (.057), GFI (.997) and CFI (.998).

Table 7 Summary of the attained fit indices: Access to Physical Infrastructure Construct

CMIN	DF	CMIN/DF	SRMR	RMSEA	GFI	CFI
2.3	1	2.3	.024	.057	.997	.998

Fit indices values of the dependent variable depicts that measurement model subjective firm performance is fit (See table 8). Each value of the fit indices are in acceptable range i.e. CMIN/DF (1.092), SRMR (.011), RMSEA (.015), GFI (.999) and CFI (1).

Table 8 Summary of the attained fit indices: Perceived Firm Performance Construct

CMIN	DF	CMIN/DF	SRMR	RMSEA	GFI	CFI
1.92	1	1.092	.011	.015	.999	1

3.3 Structural Measurement Model: The Association between EO and Subjective Firm Performance

Structural measurement model has performed to measure entrepreneurial orientation and subjective firm performance association (See Figure 2). Table 9 shown below depicts the fit indices values of structural measurement model. Each value of fit index are in acceptable range i.e. CMIN/DF (2.525), SRMR (.067), RMSEA (.055), GFI (.977) and CFI (.995). The values of path analysis shown in the Table 10 demonstrates that Entrepreneurial Orientation has a significant and positive effect on Perceived Firm Performance. Therefore, based on the values given in the table 10 below hypothesis H1 has been established.

H1: There is a significant positive relationship between entrepreneurial orientation and SME perceived performance (Accepted)

Table 9 Summary of the attained fit indices: Structural model EO and Firm Performance

Association							
CMIN	DF	CMIN/DF	GFI	NFI	CFI	RMSEA	SRMR
638.7	253	2.525	.977	.902	.995	.055	.067

Table 10 Path Analysis: EO and Perceived Performance Association

Hypothesis	Path	SRC	CR	p-value
H1	EO \longrightarrow PFP	0.581	7.406	0.000

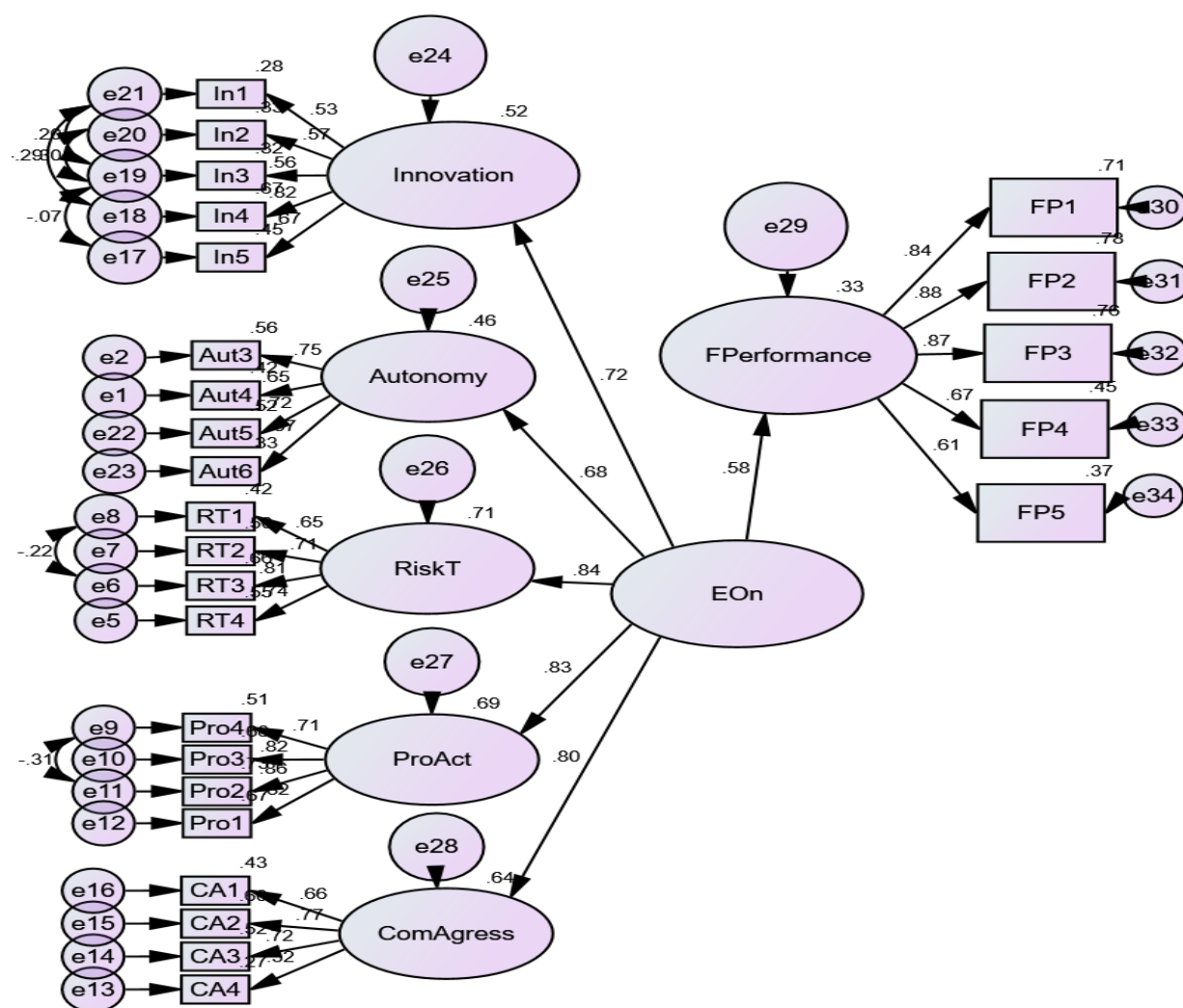


Figure 2 Structural Model

Table 11 Factor Loading, C.R and AVE Values of the Variables

Construct	Final loadings (Standardized)	C.R	AVE
Entrepreneurial Orientation		0.885	0.608
Innovation	.65		
Autonomy	.67		
Taking Risk	.81		
Pro-Active	.84		
Competitive Aggression	.83		
Physical Infrastructural Access		0.881	0.652
AccPhyInfra1	.666		
AccPhyInfra2	.878		
AccPhyInfra3	.864		
AccPhyInfra4	.805		
Firm Performance		0.887	0.614
FPerf1	.87		
FPerf2	.91		
FPerf3	.82		
FPerf4	.82		
FPerf5	.73		

CFA: Measurement Overall Model

Fit indices values of the overall measurement model depicts that overall model is a good fit model (See Figure 3). Each value of the fit indices are in acceptable range (See Table 12) i.e. CMIN/DF (3.301), SRMR (.079), RMSEA (.053), GFI (.924) and CFI (.932).

Table 12 Fit Indices of Overall Measurement Model

CMIN	DF	CMIN/DF	SRMR	RMSEA	GFI	CFI
1251.118	379	3.301	.079	.053	.924	.932

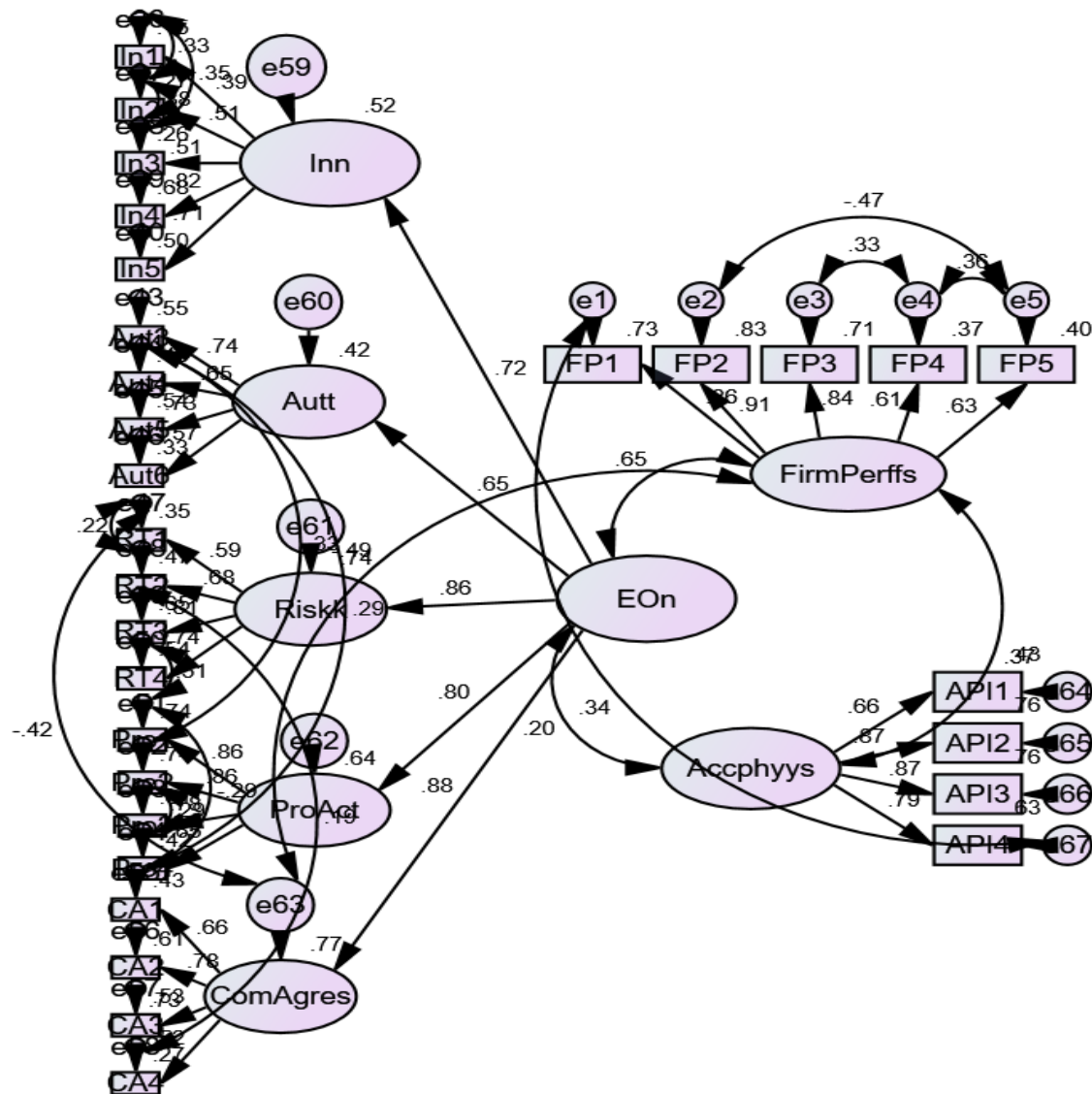


Figure 3 Overall Measurement Model

3.4 Moderating Analysis

Following Baron and Kenny (1986) three stage method of moderating analysis, required results of moderation analysis are shown in the Table 12 given below. Model 1 illustrate significant association between EO and Subjective Financial SME Performance. Model 2 demonstrates the association between moderating variable physical infrastructural access and Perceived Financial Firm Performance which has also significant. In model 3 the interactional term (EO* API) was regressed on Perceived Firm Performance which was also found significant. Based on the statistical results it has been established that Access to Physical Infrastructure positively as well as significantly moderates entrepreneurial orientation and subjective firm performance linkage. Thus, Hypothesis (H2) has been accepted.

H2: Physical Infrastructural Access Significantly Moderate relationship between Entrepreneurial Orientation and Perceived SME's Performance

Table 12 Analysis of Moderation

	R ²	adj.R ²	β	T	p-value	R ² change
Model 1						
EO → FP	0.279	0.277	.685	12.278	.000	0.279
Model 2						
API → FP	0.155	0.153	.324	8.465	.000	0.124
Model 3						
EO*API → FP	0.125	0.123	.067	7.464	.000	0.03

4. Findings and Discussions

Findings revealed entrepreneurial orientation significantly influence small medium enterprise's performance in the Khyber Pakhtunkhwa. It shows local business entrepreneurs and owners of the manufacturing SME's consider that entrepreneurial orientation substantially contributes to the SME Performance. This indicates that firm level entrepreneurship enhance firm performance against the rivals in the local region. Therefore, results are also reliable as well as supports the research findings of (Anderson & Eshima 2011; Campbell *et al.*, 2011; Cano *et al.*, 2004; Covin & Slevin 1989; Davis, 2007; Gaudici & Reinmoeller, 2013; Gnizy *et al.* 2014; Guo *et al.* 2014). Moreover, findings also revealed that physical infrastructural access significantly moderate EO and subjective firm performance link, this indicates that essential physical infrastructural resources i.e. roads, transport, broadband and telecom system as well as sewerage systems are all adequately available and exist in the four industrialized regions of Khyber-Pakhtunkhwa to support entrepreneurial orientation and SME success association. Results are consistent and supports findings of previously conducted research works by (Abdulahi *et al.*, 2016; Audretsch *et al.* 2015c; Bennett, 2018; Feldman, 2014; Hagsten & Kotnik, 2014).

5. Conclusion

Aim of present research work was to empirically assess physical infrastructural access as moderating on linkage between firm level entrepreneurial orientation and subjective financial performance of SME's (Small and Medium Enterprises) physically exists in Khyber Pakhtunkhwa. Data were obtained from the registered SME's owners, managers and senior officials of the manufacturing sector. A total of 638 research instruments were distributed among the respondents working in SME's in Peshawar, Sawabi (Gadoon), Risalpur, and Hattar industrial sectors. Among 638 distributed research questionnaires, 427 questionnaires were received, out of 427 research instruments received 392 research instruments were usable and hence included for an analysis. The response rate was 66.92%. A Seven-point Likert scale survey instrument were used to collect data ranges from 1-Strongly disagree to 7-Strongly agree. Stratified random sampling technique were used to collect each respondent proportionately among the target sample

of the current study. To perform data analysis i.e. descriptive statistics, reliability and validity of the data, IBM SPSS 23 were used. Structural model and measurement model of each construct of the study were performed in AMOS 23. Baron and Kenny (1983) three step procedure were utilized to perform moderation analysis. There was two primary objectives of current study, first objective of the current study was to investigate the influence of EO on firm subjective financial prosperity or performance, second objective was to investigate the moderating influence of physical infrastructural access on firm level EO and firm subjective financial performance linkage. Outcomes of the present research study revealed a significant as well as positive relationship between (EO) Entrepreneurial Orientation and Perceived financial SME's performance. Moreover, it has also been found that moderating variable physical infrastructural access significantly moderated entrepreneurial orientation and perceived financial success association of small and medium enterprises. The findings illustrated that entrepreneurial orientation substantially contribute towards firm financial performance as well as sufficient availability of physical infrastructural resources enhance the relation between them. Therefore, government officials and relevant policy makers should work to provide a vigorous physical infrastructural facilities i.e. roads, electricity, sewerage system, transportation systems, affordable broad band and telecommunication services, railway system , in addition to accessible dry ports to the local SME's to perform well i.e. innovate products and explore market opportunities efficiently.

5.1 Research Limitations

Current research study was limited to the four industrial zones of the province Khyber Pakhtunkhwa due to resource and time constraints. Secondly, Current research study utilized AMOS software for structural equational modeling, however other software's like Smart PLS is also available to perform SEM. Thirdly, current study empirically examined the physical infrastructural access on the association between firm level entrepreneurial activities and small medium enterprise's performance by obtaining data through Likert scale survey questionnaires, however unstructured and structured interviews are available to acquire related data or information.

5.2 Future Research Directions

This study can also be extended to other business sectors such as service, bank and government organizations. Secondly, current study is cross-sectional and quantitative in nature, so in future the same variables can be studied qualitatively as well as use longitudinal approach/design by the researchers. Thirdly, same model can be extended to other cities of Pakistan i.e. SME's working in Faisalabad, Lahore, Sialkot and Karachi.

5.3 Research Implications

Findings of the present research article would benefit policy makers and academicians to make in-depth understanding about the influence of entrepreneurship ecosystem factor physical infrastructural

access on entrepreneurial attitude-performance relationship of small medium enterprises situated in four industrial areas of Hattar, Risalpur, Peshawar and Gadon Amzai. Moreover, present research would also help industrialist to formulate strategies based on the findings and adequately organize their internal organizational resources to explore external market opportunities.

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