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(AIJBES)**www.aijbes.com**EVALUATING THE ENTREPRENEURIAL PERFORMANCE
OF MICRO-ENTERPRISES IN THE BICOL REGION,
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This work is licensed under [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)**Abstract:**

This article examines the entrepreneurial performance of micro-enterprises in the Bicol region, Philippines, using the 14 pillars of the Global Entrepreneurship Index. It also examines the effect of managerial efficiency on economic performance and the significant influence between the development index and economic performance. Micro enterprises contribute to economic development as they comprise the largest portion of the micro, small and medium enterprise sector and provide the biggest share of the country's employment. However, micro-enterprises still face significant obstacles to growth. Using descriptive statistics, slack-based data envelopment analysis, bootstrap-bias corrected and accelerated regression, multivariate analysis, and hierarchical regression, the study found out that micro-enterprises usually practice opportunity perception, start-up skills, networking, cultural support, and high growth. Micro enterprises that showed strong development performance have managerial efficiency indicating no shortage in sales and their potential. Moreover, entrepreneurial activity stimulates attitude, aspiration, and monthly sales of micro-enterprises. It directly and highly affects sales because micro-enterprises always practice the pillars of technology absorption, opportunity start-up, competition, and human capital. This article illustrates a model suggesting that micro-enterprises should improve opportunity perception, start-up skills, risk acceptance, process innovation, high growth, and internationalization to improve sales. Furthermore, the study may provide tips for micro-enterprises in the Philippines and may be used as a basis for programs and policies to support their development.

Keywords:

Entrepreneurship, Entrepreneurial Performance, Micro Enterprises, Global Entrepreneurship Development Index, Economic Performance

Introduction

Micro, small, and medium enterprises (MSMEs) are endorsed as the global economy's backbone. Indeed, MSMEs are the drivers of economic growth and innovation (APEC, 2018). They demonstrate relevance, role, and contributions to achieving the seventeen Sustainable Development Goals (SDGs) of the United Nations (UN Department of Economic and Social Affairs, 2019).

In the Philippines, there are 896,839 MSMEs, or 99.54% of the 900,914 total establishments, as reported by the Philippine Statistics Authority (PSA). Micro enterprises comprised the most significant portion of the sector with 89.53% and provided the biggest share (29.43%) of the country's total employment. The country has RA 9501, the "Magna Carta for Micro Small and Medium Enterprises (MSMEs) approved in 2008. The Bicol region acknowledges the role of MSMEs in economic and societal development. Bicol is the fifth administrative region located on Luzon Island. It has six provinces that include Camarines Sur, Camarines Norte, Albay, Sorsogon, Masbate, and Catanduanes. In fact, the Bicol Regional Development Plan 2017-2022 states that inclusive business models and social enterprises shall be developed to better micro, small, and medium enterprises.

Based on the World Economic Forum Global Competitiveness Report 2016-2017, the Philippines ranked 57th among 125 countries participating in the survey. Also, the Philippines performed poorly compared to other ASEAN countries (ASEAN Ranking on Ease of Doing Business, 2017). The 2013 report showed that our country performed significantly worse than other East Asian countries across all Doing Business indicators (German Development Institute, 2014). The Global Entrepreneurship Monitor (2014) reported that the Philippines has a business discontinuance rate of 12.6% compared to the ASEAN average of 4.8%. This report indicates that while more MSMEs are sprouting, their likelihood of failure is relatively high.

These reports show the pressing need to evaluate the country's micro-enterprises to determine their growth challenges, particularly now that the world is experiencing this raging pandemic. It is in this context that this study was conducted. Specifically, it aimed to examine the micro-enterprises in the Bicol region by evaluating their entrepreneurial performance using the 14 Global Entrepreneurship Index pillars. Also, it aimed to determine the effect of managerial efficiency on economic performance and the entrepreneurial development index. It also aims to identify any significant influence between entrepreneurial development index and economic performance, and pinpoint pillars that highly affect economic performance. The study recommends a framework to enhance the entrepreneurial development index of micro-entrepreneurs.

Literature Review

Global Entrepreneurship Index (GEI) is a complex gauge of entrepreneurship ecology's well-being in a specified nation (Acs, Szerb, and Lloyd, 2017). It quantifies the value of entrepreneurship and the range and complexity of the supportive entrepreneurial environment. The Global Entrepreneurship and Development Institute (2017) has fourteen GEI components: opportunity perception, startup skills, risk acceptance, networking, cultural support, opportunity startups, technology absorption, human capital, competition, product innovation, process innovation, high growth, internationalization, and risk capital. An entrepreneurial environment is a group of inter-reliant players and influences corresponding in such a method that allows dynamic entrepreneurship within a specific zone (Stam & Spigel, 2016).

Economic Performance

The dimension of a nation's prosperity is one of the utmost seriousness and discussed economic study concerns. Entrepreneurship development is one of the focuses of studies nowadays that boost economic growth. A survey of the effect of economic development in China found that economic progress proliferates with entrepreneurship. After regulating other variables affecting GDP growth, entrepreneurship is still associated with economic growth. Also, entrepreneurship has an autonomous influence on economic growth (Li, Yang, Yao & Zhang, 2012). On the other hand, the Philippines is expected to continue registering high growth (Felipe & Estrada, 2018). However, the Covid-19 pandemic has negatively impacted most micro-enterprises as they had decreased or no sales due to lockdown (Shinozaki & Rao, 2021). Its effects have been felt across all economic sectors and institutions (Hasanat et al., 2020).

Theoretical Framework

The study is anchored on the Entrepreneurial Ecosystem Configuration framework used in the Global Entrepreneurship Index. The entrepreneurs are at the center of the entrepreneurial ecosystem because they are the ones who drive the ecosystem. The entrepreneurs are affected by the three GEI building blocks: entrepreneurial attitudes, entrepreneurial abilities, and entrepreneurial aspirations. These fourteen pillars affect entrepreneurs. Figure 1 shows the Entrepreneurial Ecosystem Configuration framework as the theoretical paradigm.

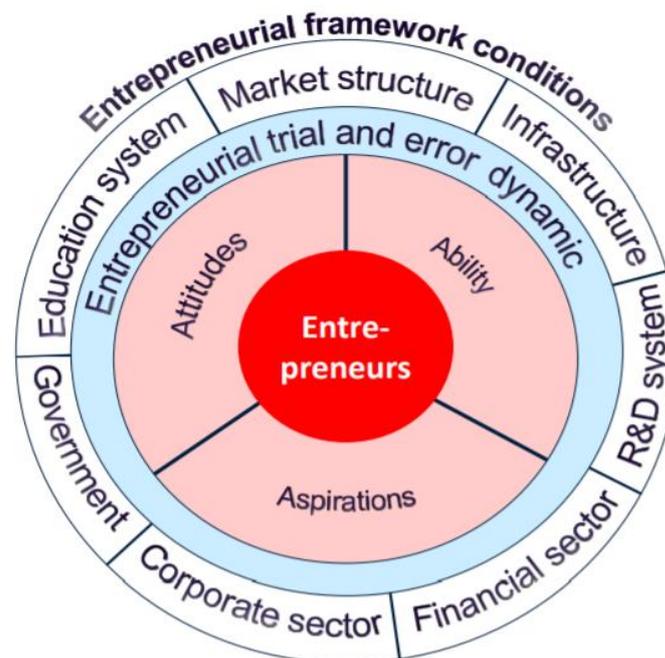


Figure 1. Entrepreneurial Ecosystem Configuration Framework

Source: Global Entrepreneurship Index

Conceptual Framework

The conceptual framework shows that it was anchored in the Entrepreneurial Ecosystem Configuration framework of the Global Entrepreneurship Index. The conceptual framework guided the study and involved the fourteen pillars of the Global Entrepreneurship Index (GEI). The Global Entrepreneurship and Development Institute (GEDI) conducts an annual report of GEI using the fourteen pillars and measures participating countries' performance along the said pillars.

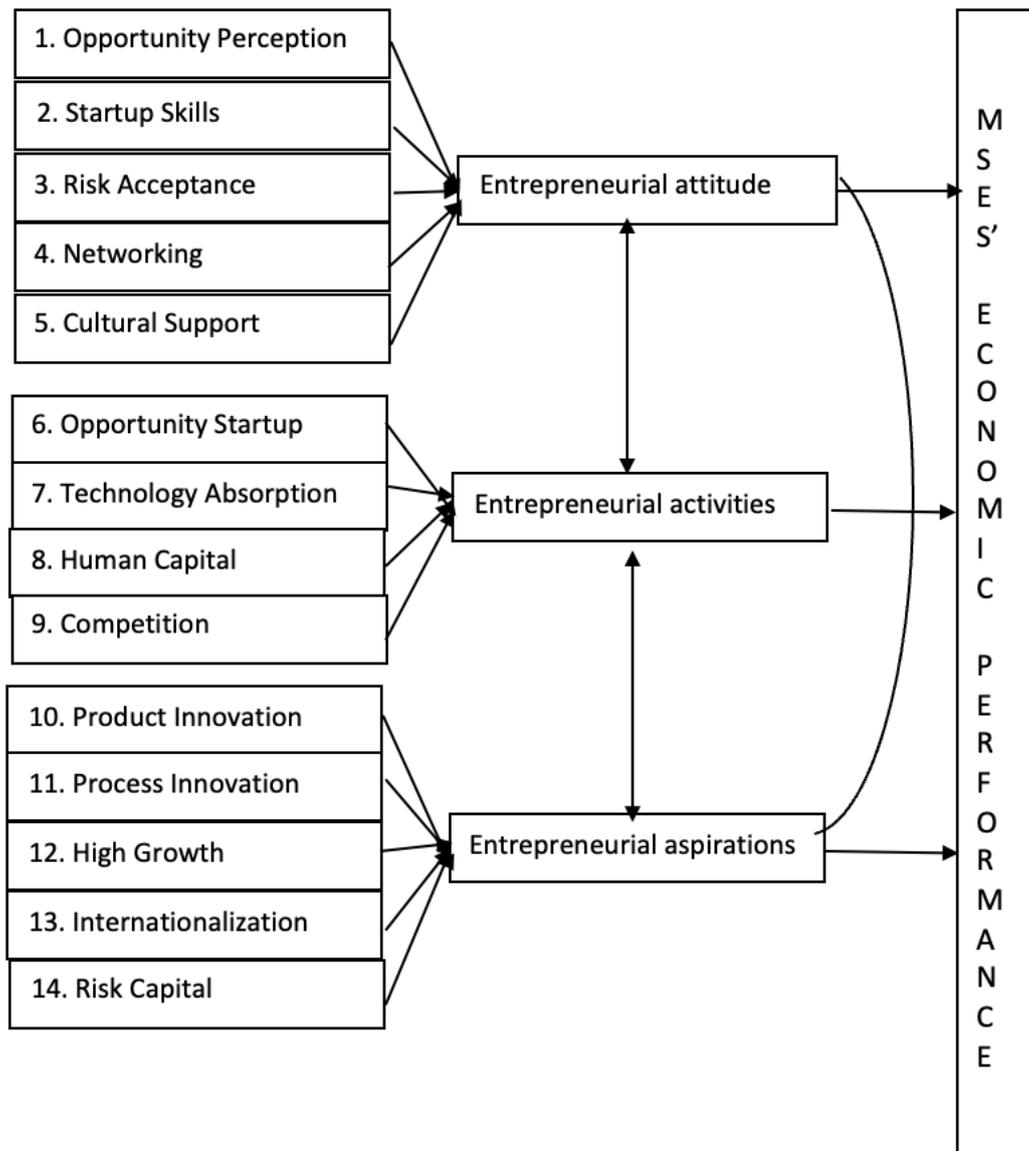


Figure 2. Conceptual Framework

Methodology

Research Design

The study made use of the descriptive-correlational method to answer the research questions. Correlation can be explained as the statistical test utilized to identify the pattern for two or more variables or data sets to vary constantly (Creswell, 2012). The study used the said method to quantify and explain any existing relationship between the global entrepreneurship index pillars and economic performance.

Sampling and Sampling Design

The study used stratified proportionate random sampling because micro enterprises are in Camarines Norte, Catanduanes, Masbate, Sorsogon, Albay, and Camarines Sur. Based on the

Philippine Statistics Authority records, there are 33,501 micro-enterprises in the Bicol region. The location is the stratum, and the researcher identified the total entrepreneurs per location.

The researcher divided the number of entrepreneurs per site by the total number of entrepreneurs of all the six provinces to get a percentage weight. Then, the researcher determined the desired sample size for this study using the Raosoft Calculator. Based on the computation, there should be 381 research participants in this study. The researcher has coordinated with the Department of Trade and Industry (DTI) provincial offices to request a list of randomly selected micro-enterprises.

Ethical Considerations

In getting information about the Global Entrepreneurship Index (GEI) from the Global Entrepreneurship and Development Institute (GEDI), the researcher indicated the proper citation and recognition of GEDI and stated the purpose of the said request. Also, proper communication was established in sourcing data while observing ethical protocol in data use. The same goes for the economic performance data, which the study took from the micro-entrepreneurs. To protect the study's respondents, the researcher adhered to the ethical standards during the research. The researcher asked permission from the potential respondents through the participant information and informed consent form to inform them that participation in the study is voluntary and withdrawal of participation at any time does not give them any liability (Seidman, 2006).

Data Analysis

The researcher used the identified procedures to answer the problems of the study. To answer question 1 (Global Entrepreneurship Index of micro-enterprises in terms of the 14 indicators), since all the pillars are measured in Likert scores of 1 – 5, the mean (average score) gave the researcher the GEI using the descriptive statistics (minimum, maximum, mean and std deviation). For question 2 (effect of managerial efficiency on economic performance and entrepreneurial development index), the researcher used the slack-based Data Envelopment Analysis, which involves variable returns to scale (VRS), to compare micro-entrepreneurial development per firm in the provinces of the Bicol Region. Also, input-oriented was indicated in the model to detect the shortage in sales and excess in the scores of the pillars of development (indicating rare or never used pillars). In question 3 (significant influence between the development index and economic performance), the study used a freeware called PROCESS Procedure for SPSS Version 3.5.2 (Hayes 2018) to facilitate the computation of the direct, indirect, and total effects of activity, attitude, and aspirations to sales. Bootstrap-bias corrected and accelerated (BCA) regression was included in the Hayes procedure to accurately determine the significance level of the dependent and independent variables. Moreover, the multivariate analysis was used for question 4 (pillars highly affecting economic performance or monthly income). Lastly, for question 5 (framework recommended to enhance the development index of micro-enterprises), the micro-model for this study was determined by the hierarchical regression

Results And Discussions

Global Entrepreneurship Index Of Micro-Enterprises

Table 1 shows the descriptive statistics on the 14 pillars of entrepreneurial development. From highest to lowest rank, start-up skills (mean = 4.15, std. dev. = ±0.54, usually), opportunity perception (mean = 4.0, std. dev. = ±0.45, usually), cultural support (mean = 3.83, std. dev. =

± 0.48 , usually), and networking (mean = 3.68, std. dev. = ± 0.57 , usually) were usually the entrepreneurial attitude practiced in the Bicol Region. The entrepreneurial attitude on risk acceptance (mean = 3.05, std. dev. = ± 0.65 , sometimes) was sometimes practiced in the Bicol Region.

Micro-entrepreneurs sometimes practiced opportunity start-up (mean = 3.38, std. dev. = ± 0.58), human capital (mean = 3.44, std. dev. = ± 0.58), technology absorption (mean = 3.27, std. dev. = ± 0.71), and competition (mean = 3.18, std. dev. = ± 0.61) in their micro-enterprises' activities. The average development index showed that micro-entrepreneurs usually practiced high growth (mean = 3.67, std. dev. = ± 0.59) in their micro-entrepreneurial aspirations.

Table 1. Descriptive Statistics For Sales And The 14 Pillars Of Entrepreneurship.

N = 406	Minimum	Maximum	Mean	Std. Deviation	V.I.
sales (monthly, PhP'000)	2	200	24.63	± 17.73	
Entrepreneurial Attitude					
A. Opportunity Perception	3	5	4.00	± 0.45	usually
B. Start Up Skills	3	5	4.15	± 0.54	usually
C. Risk Acceptance	2	5	3.05	± 0.65	sometimes
D. Networking	2	5	3.68	± 0.57	usually
E. Cultural Support	3	5	3.83	± 0.48	usually
Entrepreneurial Activity					
F. Opportunity Start-Up	2	5	3.38	± 0.58	sometimes
G. Technology Absorption	2	5	3.27	± 0.71	sometimes
H. Human Capital	2	5	3.44	± 0.58	sometimes
I. Competition	1	5	3.18	± 0.61	sometimes
Entrepreneurial Aspirations					
J. Product Innovation	1	5	3.07	± 0.53	sometimes
K. Process Innovation	1	5	2.97	± 0.63	sometimes
L. High Growth	2	5	3.67	± 0.59	usually
M. Internationalization	1	5	2.75	± 0.70	sometimes
N. Risk Capital	1	5	2.95	± 0.63	sometimes

This means micro-enterprises intended to grow and have the strategic capacity to achieve this growth in five years. The high growth aspirations intend to hire more employees, gain more profit, and access equity financing. On the other hand, micro-entrepreneurs' aspirations on product innovation (mean = 3.07, std. dev. = ± 0.53), process innovation (mean = 2.97, std. dev. = ± 0.63), risk capital (mean = 2.95, std. dev. = ± 0.63), and internationalization were sometimes practiced in the Bicol Region.

Effect Of Managerial Efficiency To Economic Performance And Entrepreneurial Development

Table 2 shows the summary of micro-entrepreneurial development in the provinces of the Bicol region. Seventy-four micro-entrepreneurs strongly managed entrepreneurial development in the Bicol Region. Micro-entrepreneurs that always practiced the 14 pillars of entrepreneurial development were detected in Albay (= 9, 12.16%), Camarines Norte (= 14, 18.92%),

Camarines Sur (= 19, 25.68%), Catanduanes (= 10, 13.51%), Masbate (= 17, 22.97%), and Sorsogon (= 5, 6.76%). Micro-entrepreneurs with strong development performance have 100% efficiency in managing the pillars, indicating no sales shortage and potential. On average, the study detected high monthly sales in Camarines Sur (= PhP49,840), Camarines Norte (= PhP36,790), and Albay (= PhP34,330). Micro-enterprises exhibited low monthly sales in the provinces of Sorsogon (= PhP25,000), Masbate (= PhP24,650), and Catanduanes (=PhP13,600).

Table 2. Strongly Managed Entrepreneurial Development In The Bicol Region.

		Albay (N=95)	CamNor (N = 55)	CamSur (N = 63)	Catan (N=19)	Masbate (N = 34)	Sorsogon (N = 40)
		N = 9	N = 14	N =19	N =10	N =17	N = 5
		Strong	Strong	Strong	Strong	Strong	Strong
		12.16%	18.92%	25.68%	13.51%	22.97%	6.76%
Y	sales (monthly)	34.33	36.79	49.84	13.6	24.65	25
Y*	potential	34.33	36.79	49.84	13.6	24.65	25
y/y*	Managerial efficiency	100	100	100	100	100	100
	Sales shortage	0	0	0	0	0	0
Entrepreneurial Attitude							
1	A.Opportunity Perception	0	0	0	0	0	0
2	B. Start Up Skills	0	0	0	0	0	0
3	C. Risk Acceptance	0	0	0	0	0	0
4	D. Networking	0	0	0	0	0	0
5	E. Cultural Support	0	0	0	0	0	0
Entrepreneurial Activity							
6	F. Opportunity Start-Up	0	0	0	0	0	0
7	G. Technology Absorption	0	0	0	0	0	0
8	H. Human Capital	0	0	0	0	0	0
9	I. Competition	0	0	0	0	0	0
Entrepreneurial Aspirations							
10	J. Product Innovation	0	0	0	0	0	0
11	K. Process Innovation	0	0	0	0	0	0
12	L. High Growth	0	0	0	0	0	0
13	M. Internationalization	0	0	0	0	0	0
14	N. Risk Capital	0	0	0	0	0	0

These micro-entrepreneurs met all their target monthly sales because they always practiced the 14 pillars of micro-entrepreneurial development. Likewise, the strong management of entrepreneurial development showed no rare or never used development index. Strongly managed entrepreneurial development suggests micro-entrepreneurs with high attitude (opportunity perception, start-up skills, risk acceptance, networking, and cultural support), activity (opportunity start-up, technology absorption, human capital, and competition), and

aspirations (product innovation, process innovation, high growth, internationalization, and risk capital)

Table 3. Moderate Or Weak Managerial Efficiency Of Micro-Entrepreneurial Development Index

	Albay (N=95)	CamNor (N = 55)	CamSur (N= 63)	Catan (N=19)	Masbate (N = 34)	Sorso (N=40)	
	N = 30	N = 22	N = 39	N = 6	N = 13	N = 19	
	Weak	Weak	Weak	Weak	Weak	Weak	
	23.26%	17.05%	30.23%	4.65%	10.08%	14.73%	
sales (monthly)	20.60	17.05	22.22	16.17	15.27	17.74	
potential	20.60	17.05	22.22	16.17	15.27	17.74	
Managerial efficiency	100	100	100	100	100	100	
Sales shortage	6.44	9.61	7.17	5.19	11.75	7.71	
Entrepreneurial Attitude							avg/pillar
A. Opportunity Perception	0.39	0.22	0.32	0.64	0.17	0.37	0.35
B. Start Up Skills	0.25	0.09	0.36	0.55	0.11	0.33	0.28
C. Risk Acceptance	0.56	0.40	0.39	0.14	0.28	0.58	0.39
D. Networking	0.82	0.42	0.73	0.70	0.38	0.67	0.62
E. Cultural Support	0.21	0.25	0.36	0.77	0.34	0.06	0.33
avg/prov	0.45	0.28	0.43	0.56	0.26	0.40	0.40
Entrepreneurial Activity							
F. Opportunity Start-Up	0.46	0.13	0.36	0.49	0.11	0.44	0.33
G. Technology Absorption	0.31	0.12	0.35	0.30	0.25	0.41	0.29
H. Human Capital	0.61	0.10	0.41	0.33	0.22	0.45	0.35
I. Competition	0.43	0.19	0.53	0.34	0.28	0.56	0.39
avg/prov	0.45	0.14	0.41	0.37	0.22	0.47	0.34
Entrepreneurial Aspirations							
J. Product Innovation	0.54	0.66	0.68	0.64	0.66	0.88	0.68
K. Process Innovation	0.68	0.78	0.88	0.61	0.55	0.77	0.71
L. High Growth	0.36	0.24	0.27	0.67	0.45	0.49	0.41
M. Internationalization	0.55	0.26	0.68	0.68	0.30	0.78	0.54
N. Risk Capital	0.63	0.28	0.55	0.55	0.58	0.71	0.55
avg/prov	0.55	0.45	0.61	0.63	0.51	0.72	0.58

Table 3 shows the moderate or weak management of entrepreneurial development in the Bicol region. The second group was composed of 129 micro-entrepreneurs that achieved their target sales and potential but possessed sales shortage and surplus (rare or never used) in development pillars. Hence, these micro-entrepreneurs were called moderate (weak) in the practice of micro-entrepreneurial development because they achieved the desired level of sales per month and their sales potential. However, the weak management of development pillars showed signs of rare or never practiced pillars in entrepreneurial development. These 129 micro-entrepreneurs were distributed in the provinces of Albay (N = 30, 23.26%), Camarines Norte (N= 22, 17.05%), Camarines Sur (N = 39, 30.23%), Catanduanes (N = 6, 16.17%), Masbate (N = 13, 10.08%), and Sorsogon (N = 19, 14.73%), respectively.

Table 4 shows the catching-up micro-entrepreneurs in enterprise development in the Bicol Region. This third group comprised 203 micro-enterprises that failed to reach their potential sales. Thus, there were shortages in their monthly sales, as reflected in their managerial efficiency. The six provinces have managerial efficiency below 100%, enumerated as follows: Masbate (94.30%), Camarines Norte (93.18%), Camarines Sur (91.89%), Albay (87.35%), Sorsogon (85.20%), and Catanduanes (71.90%), respectively.

Table 4. Catching-Up In Managing Micro-Entrepreneurial Development Pillars.

	Albay (N= 95)	CamNor (N = 55)	CamSur (N = 63)	Catan (N= 19)	Masbate (N = 34)	Sorsogon (N = 40)	
	N = 56	N = 19	N = 105	N = 3	N = 4	N = 16	
	catching-up	catching-up	catching-up	catching-up	catching-up	catching-up	
	58.95%	34.55%	64.42%	15.79%	11.76%	40.00%	
sales (monthly)	23.84	22.45	26.49	20.00	21.75	23.06	
potential	27.34	24.39	28.67	27.30	23.13	27.34	
Managerial efficiency	87.35	93.18	91.89	71.90	94.30	85.20	
Sales shortage	8.09	6.92	4.10	8.51	8.42	7.03	
Entrepreneurial Attitude							avg/pillar
A. OPPORTUNITY PERCEPTION	0.05	0.05	0.04	0.10	0.00	0.10	0.06
B. START UP SKILLS	0.04	0.05	0.14	0.10	0.01	0.03	0.06
C. RISK ACCEPTANCE	0.63	0.51	0.49	0.57	0.56	0.50	0.54
D. NETWORKING	0.52	0.25	0.43	0.49	0.16	0.24	0.35
E. CULTURAL SUPPORT	0.27	0.37	0.18	0.00	0.43	0.31	0.26
avg/prov	0.30	0.25	0.25	0.25	0.23	0.23	0.25
Entrepreneurial Activity							
F. OPPORTUNITY START-UP	0.21	0.21	0.06	0.32	0.18	0.45	0.24
G. TECHNOLOGY ABSORPTION	0.10	0.17	0.25	0.50	0.15	0.25	0.24
H. HUMAN CAPITAL	0.28	0.23	0.13	0.08	0.02	0.34	0.18
I. COMPETITION	0.18	0.31	0.30	0.72	0.52	0.37	0.40
avg/prov	0.19	0.23	0.19	0.40	0.22	0.35	0.26
Entrepreneurial Aspirations							
J. PRODUCT INNOVATION	0.32	0.42	0.32	0.68	0.25	0.62	0.43
K. PROCESS INNOVATION	0.41	0.50	0.51	1.04	0.71	0.34	0.58
L. HIGH GROWTH	0.07	0.06	0.08	0.40	0.06	0.17	0.14
M. INTERNATIONALIZATION	0.21	0.27	0.46	0.35	0.92	0.38	0.43
N. RISK CAPITAL	0.22	0.07	0.14	0.83	0.14	0.40	0.30
avg/prov	0.25	0.26	0.30	0.66	0.41	0.38	0.38

Contributing to low monthly sales of the 203 entrepreneurs were entrepreneurial attitude in enterprise development that showed rarely practiced pillars in the six provinces, such as: risk acceptance (0.54) in Albay (0.63), Catanduanes (0.57), Masbate (0.56), Camarines Norte

(0.51), Sorsogon (0.50), and Camarines Sur (0.49); networking (0.35) in Albay (0.52), Catanduanes (0.49), Camarines Sur (0.43), Camarines Norte (0.25), Sorsogon (0.24), and Masbate (0.16); cultural support (0.26) in Masbate (0.43), Camarines Norte (0.37), Sorsogon (0.31), Albay (0.27), and Camarines Sur (0.18); opportunity perception (0.06) in Catanduanes & Sorsogon (0.10), Albay & Camarines Norte (0.05), and Camarines Sur (0.04); and start-up skills (0.06) in Camarines Sur (0.14), Catanduanes (0.10), Camarines Norte (0.05), Albay (0.04), Sorsogon (0.03), and Masbate (0.01). Surprisingly, Masbate and Catanduanes showed always practiced entrepreneurial attitude of enterprise development in opportunity perception (0.00) and cultural support (0.00), respectively.

Significant Influence Between The Development Index And The Economic Performance

The three (3) distinct indicators of activity, attitude, and aspirations were derived from the 14 pillars of the entrepreneurial development index. The researchers shortened the names of the variables to 8 characters (active, attitude, and aspire) to satisfy the requirement of Process procedure Ver 3.5.2. The original values of the dependent and independent variables were transformed into a natural logarithm to homogenize outliers and inliers and smoothen the curve. The mediation procedure would help explain the role of each entrepreneurial development variable and their influence on the sales performance of micro-enterprise in the Bicol region.

Figure 1 illustrates the path analysis of the influence of activity (X-independent) on mediators (attitude, M1 and aspirations, M2). Then, it shows the influence of mediators (M1 and M2) on sales (Y – dependent). Lastly, the influence of activity (X) on sales (Y) is shown. Therefore, the mediation occurs under the following basic conditions: 1. The X (activity) influences the mediators (M1-attitude and M2-aspirations); 2. The X (activity) influences the Y (sales); and 3. The mediator (M1 and M2) influences the Y (sales). These are the basic conditions to satisfy the incidence of mediation in the analysis.

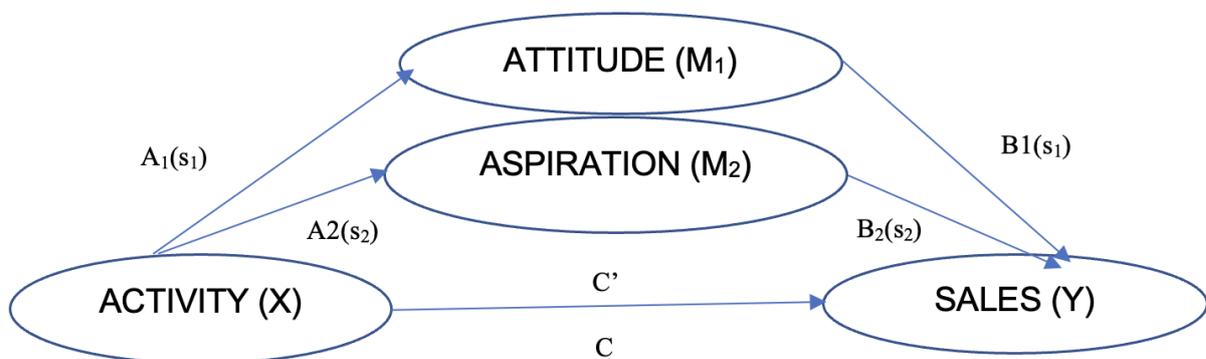


Figure 1. The Path Analysis For Mediators, Independent, And Dependent Variables.

Table 5 shows the effect or influence of activity (active) on mediators (attitude and aspiration or aspire). The results of Bootstrap (BCA) regression from PROCESS Procedure for SPSS Version 3.5.2 (Hayes 2018) suggested that 100 percent increase in entrepreneurial activity (opportunity start-up, technology absorption, human capital, and competition) improved entrepreneurial attitude (opportunity perception, start-up skills, risk acceptance, networking, and cultural support) and aspiration (product innovation, process innovation, high growth, internationalization, and risk capital) by 39.4% ($\rho = 0.001$) and 65.4% ($\rho = 0.001$), respectively. The values for path A1 (= 0.3939, Sa1 = 0.295) and A2 (= 0.6542, Sa2 = 0.039) satisfied the first condition in mediation. Hence, higher entrepreneurial activity influence or stimulate entrepreneurial attitude and aspiration in enterprise development in the Bicol region.

Table 5. The Effect Of Independent Variable (Activity Or Active) To Attitude And Aspiration In Micro-Enterprise Development In The Bicol Region.

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*****
OUTCOME VARIABLE: attitude

Model
  coeff    se      t      p    LLCI    ULCI
constant .8476  .0354  23.9353 .001  .7780  .9173
active   .3939  .0295  13.3619 .001  .3360  .4519
*****

OUTCOME VARIABLE: aspire

Model
  coeff    se      t      p    LLCI    ULCI
constant .3371  .0469   7.1919 .001  .2450  .4293
active   .6542  .0390  16.7633 .001  .5775  .7309
*****

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Source: PROCESS Procedure for SPSS Version 3.5.2 (Hayes 2018)

Table 6 shows the effects of mediating variables (attitude and aspiration) as influenced by the independent variable (activity or active) on the sales performance of micro-entrepreneurs in the Bicol region. Attitude (0.1960, $\rho = 0.7051 > 0.05$) and aspiration (- 0.3680, $\rho = 0.3471 > 0.05$) have no significant influence on monthly sales of micro-entrepreneurs in the Bicol Region. The values of coefficients suggested that a 100% increase in entrepreneurial attitude suggests an influence of 19.6% improvement in the monthly sales performance of the micro-entrepreneurs.

Table 6. The Effects Of Mediating Variables (Attitude And Aspiration) As Influenced By The Independent Variable (Activity Or Active) On Sales Performance.

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*****
OUTCOME VARIABLE: sales

Model
  coeff    se      t      p    LLCI    ULCI
constant 2.0365  .5497   3.7046 .0002  .9558  3.1172
active   .9209  .4052   2.2727 .0236  .1243  1.7175
attitude .1960  .5175   .3787  .7051  -.8214  1.2133
aspire  -.3680  .3909  -.9413  .3471  -1.1365  .4006
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However, low entrepreneurial aspiration (- 0.3680) influenced a decline of 36.8% in monthly sales of the micro-entrepreneurs. The low entrepreneurial aspiration indicated rarely practiced aspiration in enterprise development. A high entrepreneurial attitude indicated an always practiced attitude in enterprise development.

Only entrepreneurial activity (0.9209, $\rho = 0.0002 < 0.05$) was significant at 5% level. The coefficient value for activity indicated 100% entrepreneurial activity that generates 92.09% of monthly sales of an average entrepreneur in the Bicol Region. The 100% entrepreneurial activity means always practiced activity in entrepreneurial development stimulates monthly sales performance. The values for path b1 (= 0.1960, $Sb1 = 0.5175$) and b2 (= - 0.368, $Sb2 = 0.3909$) constitute the second condition of the mediation. Hence, attitude and aspiration must emanate from entrepreneurial activity to improve entrepreneurial development and monthly sales.

Path c is the third condition in mediation analysis. This is the influence of entrepreneurial activity on monthly sales of micro-entrepreneurs in the Bicol region. The value of coefficient for activity indicated a 100% increase in activity influenced a 75.74% ($\rho = 0.0103 < 0.05$) increase in monthly sales of micro-entrepreneurs in the Bicol region. The 100% increase in entrepreneurial activity indicated a high activity or always practiced entrepreneurial activity in enterprise development. High entrepreneurial activity stimulated enterprise development and generated high monthly sales. Table 7 shows the effect of entrepreneurial activity on monthly sales in the Bicol region.

Table 7. The Effect Of Entrepreneurial Activity On Monthly Sales (Path C).

OUTCOME VARIABLE: sales

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.0785	.3530	5.8884	.001	1.3846	2.7725
active	.7574	.2938	2.5775	.0103	.1797	1.3350

Table 8 shows the summary of the total, direct, and indirect effects of X on Y. The total effect of X (activity) to monthly sales was 0.7574 ($\rho = 0.0103 < 0.05$). This is the total effect (c') produced by the entire model, indirect and direct effects. It is the sum of indirect effect ($a*b = -0.1635$) and direct ($c = 0.9209$) effects. Computation of the paths showed that the total effect was 0.7574, indicating a statistically significant effect ($p = 0.0103 < .05$).

This is path c, described in Figure 1. Together with the mediators, the direct effect of X (activity) to monthly sales was 0.9209 ($\rho = 0.0236 < 0.05$). The study determines if the relationship between the independent (X = activity) and dependent (Y = sales) variables was direct and not mediated by a third variable. The Hayes Process Macro test results show that the direct effect was 0.9209 with a t value of 2.2727 and a p-value of 0.0236 ($p < .05$). Thus, we reject the null hypothesis that the relationship between entrepreneurial activity and monthly sales is not direct. Notice that “zero” falls outside the 95% confidence interval (LLCI = 0.1243 to ULCI = 1.7175). In other words, the “c” coefficient is statistically significant.

This part of the results examines the null hypothesis that the indirect relationship between the independent (X = activity) and the dependent (Y = sales) variables equals zero. The Hayes process shows that the total indirect effect is equal to “-0.1635” with a 95% bootstrap confidence interval of -.7798 (lower limit) to 0.4417 (upper limit). The study rejected the null hypothesis because “zero” does not fall within the 95% confidence interval. In other words, the study concludes that attitude and aspiration mediate the relationship between activity and sales; that is, “a*b” (-0.1635) is statistically significant at alpha .05 ($p < .05$).

Table 8. Summary Of The Total, Direct, And Indirect Effects Of X On Y.

***** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y *****

Total effect of X on Y

Effect	se	t	p	LLCI	ULCI
.7574	.2938	2.5775	.0103	.1797	1.3350

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.9209	.4052	2.2727	.0236	.1243	1.7175

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
TOTAL	-.1635	.3113	-.7798	.4417
attitude	.0772	.2119	-.3357	.4937
aspire	-.2407	.3203	-.8892	.3842

Also, the value of indirect effects of attitude ($0.0772 < LLCI = -0.3357$, $ULCI = 0.4937$) and aspiration ($-0.2407 < LLCI = -0.8892$, $ULCI = 0.3842$) does not fall within the zero limit of 95% confidence interval, the study rejected the null hypothesis of no indirect relationship between mediators and the monthly sales.

Pillars Highly Affecting Economic Performance

Table 9 shows the pillars of entrepreneurial development affecting monthly sales of micro-entrepreneurs in the Bicol Region, entrepreneurial activity directly affected and greatly enhanced micro-entrepreneurial development and monthly sales of micro-enterprises in the Bicol region. Using multivariate analysis, the results showed the positive value of B-coefficients for opportunity start-up ($= 0.153$, $\rho = 0.001$), technology absorption ($= 0.317$, $\rho = 0.001$), human capital ($= 0.111$, $\rho = 0.001$), and competition ($= 0.108$, $\rho = 0.001$) implied monthly sales improvement of 15.3%, 31.7%, 11.1%, and 10.8% for every 100% contribution of the pillars of entrepreneurial activity. The 100% contribution signified that the four (4) pillars of entrepreneurial activity were always practiced in entrepreneurial development in the Bicol region.

**Table 9. Pillars Of Entrepreneurial Development Affecting Monthly Sales
In The Bicol Region.**

Pillars of Development Index	Unstandardized Coefficients	Standardized Coefficients		
	B	Beta	Sig.	VIF
Entrepreneurial Attitude				
A. Opportunity Perception	-.509	-.078	0.001	1.285
B. Start Up Skills	-.109	-.018	0.001	1.220
C. Risk Acceptance	.010	.003	0.061	1.340
D. Networking	.407	.090	0.001	1.466
E. Cultural Support	.305	.049	0.001	1.306
Entrepreneurial Activity				
F. Opportunity Start-Up	.153	.033	0.001	1.377
G. Technology Absorption	.317	.088	0.001	1.423
H. Human Capital	.111	.023	0.001	1.596
I. Competition	.108	.027	0.001	1.725
Entrepreneurial Aspirations				
J. Product Innovation	.134	.032	0.001	1.895
K. Process Innovation	-.296	-.085	0.001	1.437
L. High Growth	-.265	-.055	0.001	1.199
M. Internationalization	-.092	-.031	0.001	1.229
N. Risk Capital	.151	.044	0.001	1.490
Dependent Variable: sales (monthly, PhP'000)				

Except for risk acceptance, entrepreneurial attitude contributed two pillars in improving monthly sales of micro-entrepreneurs. Risk acceptance was not statistically significant but suggested a 1.0% effect on monthly sales. Networking and cultural support were always practiced in entrepreneurial development and contributed 40.7% and 30.5% to improving monthly sales. Monthly sales increase in the micro-enterprise because of practices related to knowing other entrepreneurs and their geographical concentration. Choosing the right entrepreneurship and responding to factors that make managing micro-enterprises difficult improved the monthly sale of micro-entrepreneurs in the Bicol region.

However, opportunity perception (-0.509, $\rho = 0.001$) and start-up skills (-0.109) were not contributing to the improvement of monthly sales. The negative contribution suggested that the two pillars rarely practiced entrepreneurial attitude in micro-enterprise development. The negative contributions suggest that micro-entrepreneurs rarely practiced identifying opportunities to start a business and the assistance of the environment to make it possible to act on these opportunities. Also, rarely practiced was knowledge of skills necessary to start a business based on their perceptions and the availability of education.

Out of five pillars, entrepreneurial aspirations contributed only two pillars to improving monthly sales of micro-entrepreneurs in the Bicol region. Micro-enterprise that always practiced product innovation (0.134, $\rho = 0.001$) and risk capital (0.151, $\rho = 0.001$) generates 13.4% and 15.1% improvements on their monthly sale. Monthly sales increase because micro-entrepreneurs always develop new products and integrate new technology. Also, they always

practiced availing of capital from individual and institutional investors to increase their monthly sales.

Three pillars of entrepreneurial aspirations negatively affected monthly sales, namely: process innovation (-0.296 , $\rho = 0.001$), high growth (-0.265 , $\rho = 0.001$), and internationalization (-0.092), respectively. The negative effects suggested that process innovation, high growth, and internationalization were rarely practiced in micro-enterprise development. Also, the results showed evidence that entrepreneurial aspirations were not generally contributing to micro-enterprise development and monthly sales. Entrepreneurial aspirations were not contributing to monthly sales because of the following rarely practiced reasons: use of new technology with high-quality human capital in science and technology; intention to grow and the strategic capacity to achieve the intended growth; and desire to enter the global market and the ability to produce ideas that are valuable globally.

Hence, entrepreneurial activity directly and highly affected monthly sales because micro-entrepreneurs always practiced the pillars of entrepreneurial development, such as technology absorption, opportunity start-up, competition, and human capital.

Recommended framework to enhance the development index

This problem was answered through hierarchical regression wherein variables of interest (the 14 pillars of entrepreneurial development) explain a statistically significant amount of variance in the dependent variable (monthly sale) after accounting for all other variables. Park and Valenzuela (2009) demonstrated that this is a framework for model comparison rather than a statistical method. This study developed several regression models by adding variables (pillars) to a previous model at each hierarchy. The interest of the study is to determine whether added variables (pillars) show significant improvement in the proportion of explained variance (ΔR^2) in the dependent variable (monthly sale). Hence, the study investigates if entrepreneurial attitude, activity, and aspiration pillars could be important predictors for monthly sales.

Table 10 shows the results of hierarchical regression for entrepreneurial development. The first hierarchy displayed the model for entrepreneurial attitude with five pillars. The first model (entrepreneurial attitude) explained 1.7% of the variance (ΔR^2) in the monthly sale at a 0.001 level of significance. The second model (entrepreneurial activity) described an additional 1.1% of the variance (ΔR^2) in the monthly sale after running both the entrepreneurial attitude and activity. The third model (entrepreneurial aspiration) explained an additional 1.0% of the variance (ΔR^2) in the monthly sale after running all the three major constructs (attitude, activity, and aspiration). All the changes in the variance (ΔR^2) were significant at the 5% level.

Aside from the coefficients of variables, the study observed changes in R^2 (ΔR^2) of Models 1, 2, and 3, which are 0.017, 0.011, and 0.010, respectively. The ΔR^2 was computed using ANOVA results to detect the significance of the differences in ΔR^2 for each model. The F-change values models 1, 2, and 3 were computed as 2022.96, 1621.98, and 1204.24, respectively. The level of significance was 0.001 for all the three models suggesting that the change in the R^2 was significantly below the 5% level. Note that adding variables always increases the R^2 , whether it actually explains additional variation in the DV (monthly sale). So, the F-tests were performed to detect the significance of the change in variance explained (ΔR^2) in the three models.

Table 10. Results Of Hierarchical Regression For Entrepreneurial Development In The Bicol Region.

Predictors (Pillars)	Reg1	Reg2	Reg3
A. OPPORTUNITY PERCEPTION	-.480	-.542	-.509
$\rho =$	0.001	0.001	0.001
B. START UP SKILLS	-.051	-.097	-.109
$\rho =$	0.001	0.001	0.001
C. RISK ACCEPTANCE	.081	-.027	.010
$\rho =$	0.001	0.001	.061
D. NETWORKING	.410	.342	.407
$\rho =$	0.001	0.001	0.001
E. CULTURAL SUPPORT	.457	.276	.305
$\rho =$	0.001	0.001	0.001
F. OPPORTUNITY START-UP		.113	.153
$\rho =$		0.001	0.001
G. TECHNOLOGY ABSORPTION		.345	.317
$\rho =$		0.001	0.001
H. HUMAN CAPITAL		.037	.111
$\rho =$		0.001	0.001
I. COMPETITION		.096	.108
$\rho =$		0.001	0.001
J. PRODUCT INNOVATION			.134
$\rho =$			0.001
K. PROCESS INNOVATION			-.296
$\rho =$			0.001
L. HIGH GROWTH			-.265
$\rho =$			0.001
M. INTERNATIONALIZATION			-.092
$\rho =$			0.001
N. RISK CAPITAL			.151
$\rho =$			0.001
$R^2 =$.017	.028	.039
$\Delta R^2 =$.017	.011	.010
F change =	2022.96	1621.98	1204.24
Sig. F Change =	0.001	0.001	0.001
Dependent Variable: sales (monthly, PhP'000)			

The study opted for the third model because it showed the positive and negative pillars significantly contributing to or negating the monthly sales. From the third model, this study presented below the recommended entrepreneurial development pillars that should be retained or improved to increase monthly sales in the Bicol region. Figures 2 and 3 show the recommended framework to enhance the development index of the micro-entrepreneurs in the Bicol region. By enhancing the development index of the micro-entrepreneurs, monthly sale

improves because they would always practice entrepreneurial activity, attitude, and aspiration to stimulate growth in enterprise development.

Entrepreneurial development pillars that should be retained were positive contributors to sales, namely: entrepreneurial activity (technology absorption, opportunity start-up, competition, and human capital), entrepreneurial attitude (networking and cultural support), and entrepreneurial aspiration (risk capital and product innovation). These are the development pillars that micro-enterprises have always practiced in the Bicol region.

Entrepreneurial development pillars that should be improved were negative contributors to sales, such as entrepreneurial attitude (opportunity perception, start-up skills, and risk acceptance) and entrepreneurial aspiration (process innovation, high growth, and internalization. These are the development pillars that were rarely practiced in the micro-enterprise of the Bicol region.

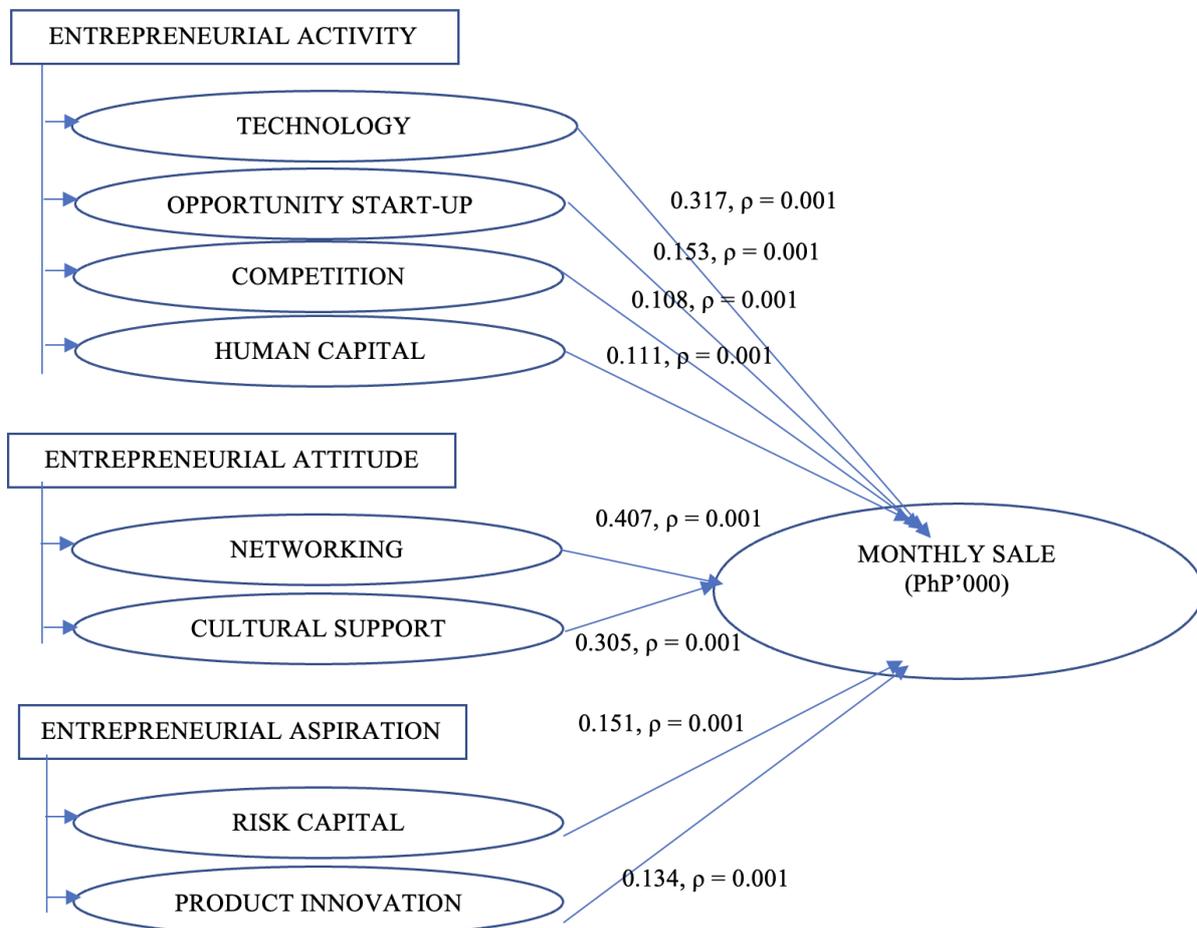


Figure 2. Entrepreneurial Development Pillars That Should Be Retained

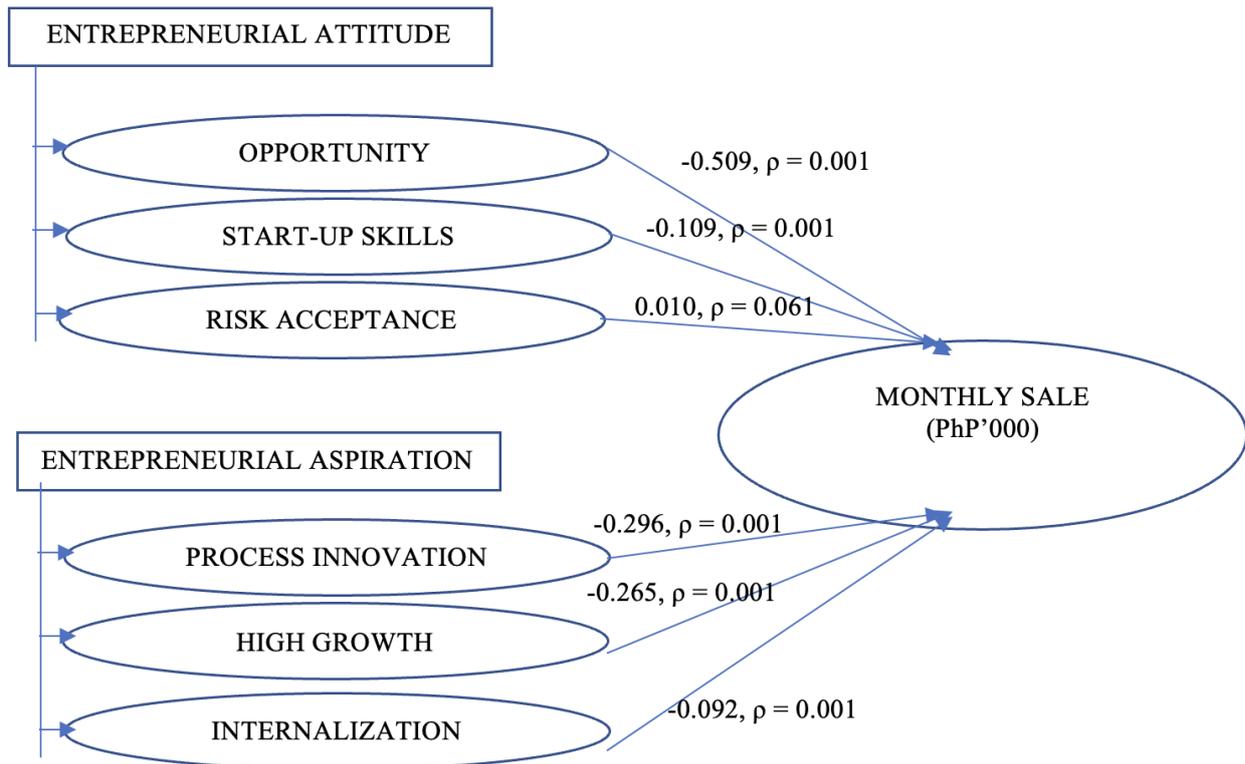


Figure 3. Entrepreneurial Development Pillars That Should Be Improved.

Conclusion

With an entrepreneurial attitude, micro-entrepreneurs usually practice opportunity perception, start-up skills, networking, and cultural support while sometimes practicing risk acceptance. Also, they sometimes practice entrepreneurial activity, including opportunity start-up, technology absorption, human capital, and competition. Moreover, micro-enterprises usually practice high growth while they sometimes practice product innovation, process innovation, internationalization, and risk capital in entrepreneurial aspirations. Efficiency in the management of GEI pillars positively affects the economic performance and entrepreneurial development index of micro-entrepreneurs. Entrepreneurial activity influences entrepreneurial attitude and aspiration. Also, entrepreneurial activity has a significant influence on monthly sales. Among the 14 GEDI pillars, only technology absorption and opportunity start-up showed the highest effects on monthly sales. Networking, cultural support, product innovation, and risk capital also improved monthly sales. Micro enterprises should retain the pillars of technology absorption, opportunity start-up, competition, human capital, networking, cultural support, risk capital, and product innovation. Also, they should improve opportunity perception, start-up skills, risk acceptance, process innovation, high growth, and internalization.

To support these conclusions, government offices in the Bicol region may use this research as basis in formulating policies that will provide benefits to the said sector. Local government units can also utilize this research as basis in crafting programs that will help their local micro enterprises. Lastly, a collaborative extension project among state universities and colleges in the region may be initiated to primarily focus on planning and implementing activities to respond to the weaknesses of micro enterprises along the pillars of opportunity perception, start-up skills, risk acceptance, process innovation, high growth, and internalization. Business

mentoring and monitoring may be conducted through their respective extension offices and Technology Business Incubation (TBI) centers among micro enterprises. The study recommends that future research may be conducted to focus on the challenges encountered of micro enterprises in the Bicol region along the rarely practiced GEDI pillars. Researchers may also replicate the said study in other locations to evaluate other micro entrepreneurs' development index or to compare development indices of micro entrepreneurs in different locations with the hope of generating more information on how to support the said sector.

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