

RESEARCH ARTICLE

Exploring the Entrepreneurial and Innovation Orientation of Central Luzon Entrepreneurs Using the Global Entrepreneurship Monitor Data

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Abstract: From the Global Innovation Index (GII), the Philippines was ranked at 73rd which was far behind the four countries belonging to the Association of Southeast Asian Nations member states where Singapore placed fifth (5th), while Malaysia, Thailand, and Vietnam placed 35th, 44th and 45th, respectively. The Philippines was ranked higher than Indonesia (85th) and Cambodia (98th). Based on the Survey of Innovation Activities in 2015 where innovative behavior was found to be contingent on the location and firm size, less than half of the micro, small, and medium enterprises (MSMEs) in Luzon (except National Capital Region) are innovation active.

The study analyzed how entrepreneurial orientation (EO) lead to innovative orientation among MSMEs in Region III outside of the variables included in the 2014 GEM database. To supplement the dichotomous nature of the 2014 GEM data where no probing questions were deployed to elaborate on their responses, the sequential explanatory mixed method design was used to validate the quantitative data generated from the 2014 GEM respondents from Region III. The quantitative design used the 170 respondents from Region 3 while the qualitative design collected data via focus group discussion (FGD) from 25 nascent, new and established entrepreneurs from Region III. The quantitative data was analyzed using multinomial logistic regression due to the dichotomous and interval nature of the GEM data. The qualitative data from the FGD was examined using content analysis in establishing general themes generated.

Results of the study yielded competitive aggressiveness as a significant determinant of innovative orientation which the FGD participants validated and deemed to be as relevant as the other EO constructs of innovativeness, autonomy, risk-taking and proactiveness.

Keywords: nascent entrepreneurs; new and established businesses; competitive aggressiveness; innovative and entrepreneurial orientation; product, market and technology innovative orientation; mixed method research

JEL Classifications: L22, L25, L26, O32, O33, Q55

In the 2018 Global Innovation Index report, the Philippines has ranked 73rd out of nearly 130 economies in an overall measure of the innovation climate. Global Innovation Index (2018) has continued to work on the basis of two factors: assisting countries in assessing their innovation performance based on innovation metrics collected according to international standards, and aiding countries enhance their innovation policies by taking advantage their strengths and conquering challenges. The Global Innovation Index is a composite measure of innovation, composed of various indicators on seven pillars: institutions, human capital and research, infrastructure, market sophistication, business sophistication, knowledge and technology outputs, and creative outputs.

Innovation Activities in the Philippines

As cited by Albert et al. (2017) from the OECD (1998), innovation is having “new, good ideas put to work” (p. 7). It involves the creation, development, deployment, and economic utilization of new knowledge as new products and new services. Thus, innovation may not always be connoted with inventions as its measurement has traditionally been focused on monitoring research and development (R&D) indicators. Albert et al. (2017) examined the results of the 2015 Survey of Innovation Activities (SIA) where establishments are defined as innovation active if they are

1) Product innovators with introductions of new or significantly improved products and/or services; 2) process innovators that bring out any new or significantly improved methods of manufacturing, logistics, delivery and distribution methods of inputs, and supporting activities meant for company processes such as maintenance systems or operations for purchasing, accounting, or computing; 3) engaged in innovation projects that are not yet complete or abandoned; and 4) engaged in spending for innovation activities through i) internal or outsourced R&D; (ii) training; (iii) acquisition of external knowledge machinery, equipment or software linked to innovation activities; (iv) market introduction of innovations; and, (v) other preparations to implement innovations (p. 19).

Determinants of Innovation Orientation

Manu and Sriram (1996) conceptualized “innovation orientation as a multi-component concept of new product and R & D expenditures and market entry” (p. 82). Berthon, Hubert, and Pitt (1999) defined innovation orientation as technological superiority which overlaps Hurley, Hult and Tomas’ (1998, p. 44) theory of innovativeness as “openness to new ideas as an aspect of a firm’s culture” and Hult, Hurley, and Knight’s (2004, p. 430) view of innovativeness “as the ability to introduce new product, technology and idea.”

Results of the SIA, as cited by Albert (2017), revealed that about 42.9% of establishments in the country were innovation active in 2015. As emphasized in the SIA results (Albert et al., 2017, p.49), “location is a major determinant of innovative behavior” especially for production innovation: firms in NCR and the rest of Luzon, all other things equal, are more likely to be product innovators than firms in other Mindanao (and other areas). In addition, SIA report revealed that

1) Mindanao and NCR have the biggest share of firms that are innovation active with at least 45% of the total; 2) Mindanao also had the biggest share of firms with knowledge management at 53.9%; 3) Mindanao managed to have the least expenditures for innovation in both peso value (Php580,000) and relative terms (2.9% of gross sales); 4) Visayas has the least proportion of firms that are innovation active at 36.6%, and the least proportion of product innovators (at 27.5 %); 5) Visayas, despite having low product innovators managed to have the biggest share of firms with public financial support for innovation (6.3%) and the largest percentage of firms at 49.2% that are marketing innovators; and 6) Visayas also had the biggest proportion of establishments at 30.9% that are aware of government innovation policy or intervention needed for product and market innovation (pp. 22-23).

The rest of Luzon had the least product innovators with new to market products (17.5%), and least process innovators where process innovation was developed within the establishment or enterprise. The rest of Luzon areas also had the highest share for abandoned innovation activities at 14.5%.

Aside from location, the size of the firm was also found to be a major determinant for innovative behavior in the SIA report. The SIA report, as cited in Albert (2017), concluded that large establishments are more likely to undertake innovation, with about 63.0% being innovation active, as compared with the micro-sized firms with 33.9% being active innovators while small and medium enterprises which performed innovation activities of 49.6% and 46.1% of the total.

Based on the SIA report, this study examined the innovative orientation of entrepreneurs in Region III, which is part of the rest of Luzon with the least product and process innovators with new to market products developed within the establishment or enterprise.

Furthermore, the Global Entrepreneurship Monitor (GEM) Adult Population Survey (APS) data for 2014 (Singer, Amoros, & Moska, 2015), revealed that at least one-third of Region III's new businesses (NB), nascent businesses, and established businesses' customers do not see their products as new and unfamiliar. This is consistent with the findings that more than half of the owners of the new, nascent, and established businesses observed that many of their competitors are offering the same products and services. As regards to the use of technology, 71% of the respondents who are owners of established businesses in Region III use outdated technology which has been there for more than five years, far greater than the nascent and new business owners' 46% and 57% share of using technology that is older than five years.

Singer et al. (2015) in the GEM Report (2014) defined "NBs as businesses owned by individuals aged 18 to 64 who paid salaries, wages, or any other payments for more than three months, but not more than 42 months. Nascent entrepreneurs are individuals aged 18 to 64 who are actively involved in setting up a business they will own or co-own; the entrepreneur has not paid salaries, wages, or any other payments to the owners for more than three months. Established businesses are owned by individuals aged 18-64 who are currently an owner-manager of an established business; owning and managing a running business that has paid salaries, wages, or any other payments to the owners for more than 42 months. GEM explores and measures the role of entrepreneurship in national and regional economic level. This initiative is anchored to

the Schumpeterian view that "entrepreneurs are motivated to undertake innovation to introduce structural changes in the country, and contribute to production and employment," (Singer et al., 2015, p. 17).

The National Economic Development Authority (2015) also revealed the factors that deter the rapid development of the micro, small, and medium enterprises (MSMEs) in Region III include inadequacies in product design, development, and packaging efforts as well as high cost of doing business due to corruption and red tape. Thus, NEDA recommended raising the level of competitiveness of MSMEs in Region III, especially on the quality of MSME products. As a result of its dismal innovative orientation condition, Region III had to continuously enhance and build its competitive edge. Region III establishments' initiative to increase competitiveness has to be backed up by efficient and extensive provision of government services and infrastructure for businesses to operate more efficiently. As a result of the need to intensify the innovation activities of Region II, this research has established the causality among entrepreneurial orientation, organizational competencies, and market orientation towards the innovative orientation of MSMEs in Region III.

Research Problems

Based on the abovementioned rationale, this study determined the underlying factors that MSMEs in Region III consider in undertaking innovative activities of MSMEs in Region III aside from the factors use in the 2014 GEM database which include products, market, and technology innovative activities. Specifically, this study answered the following problems:

- (1) What is the extent of influence of entrepreneurial orientation (perceived capabilities, perceived opportunities, fear of failure, and motivation) on the innovative orientation of the 2014 GEM APS respondents in Region III?
- (2) How does institutional context or condition influence the relationship between entrepreneurial orientation and the innovative orientation of 2014 GEM APS respondents in Region III?

(3) Aside from product/service, market, and technology innovation, what other innovation activities are performed by MSMEs in Region III to increase their innovative orientation?

(4) How can the relevant government agencies assist the MSME owners to improve their entrepreneurial orientation, organizational competencies, market orientation, and innovative orientation?

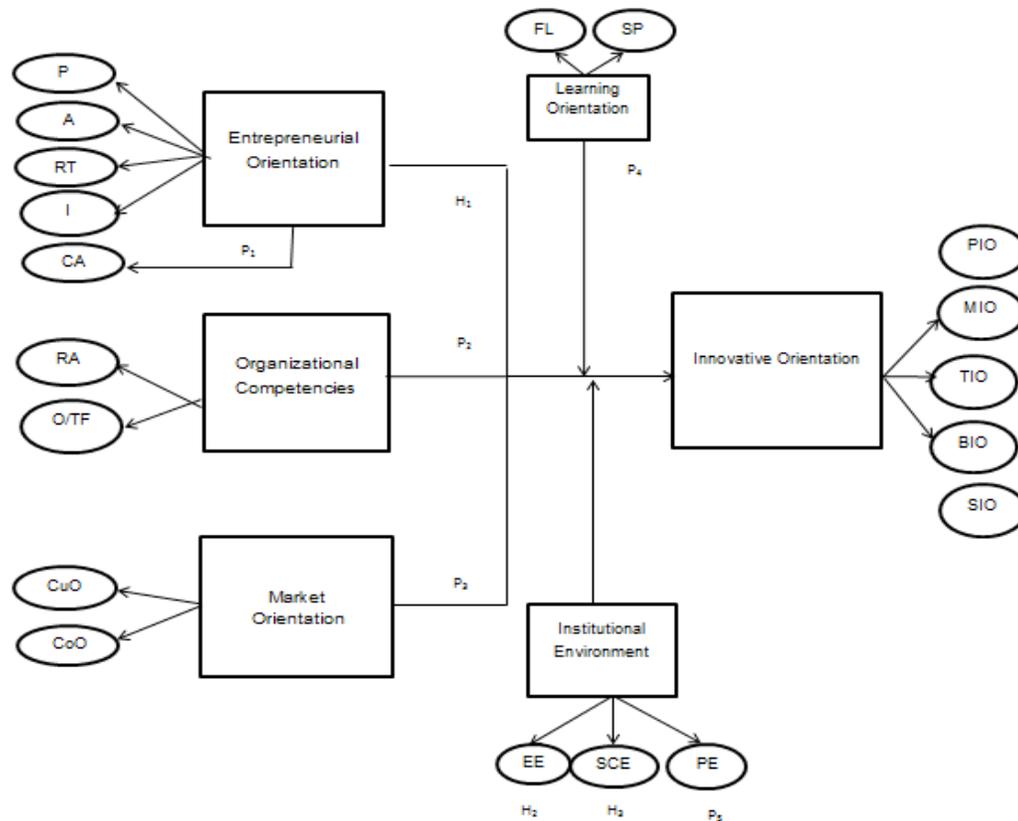
Objectives

To address these research problems, the study aimed to determine the extent of relationship between innovative orientation and entrepreneurial orientation composed of product, market and technology among MSMEs in Region III respondents found in the 2014 GEM database. In addition, the study also

investigated the moderating effect of institutional context between the relationship of entrepreneurial and innovative orientation among MSME respondents of 2014 GEM APS. Furthermore, this study also aimed to provide recommendations to the entrepreneurs and government agencies that will improve the MSME respondents’ entrepreneurial orientation, organizational competencies, market orientation, and innovative orientation.

Operational Framework of the Study

In order to study the causal relationship between the entrepreneurial and innovative orientation of MSME respondents in Region III, the following were investigated and summarized in the operational framework adopted from Reyes (2017) illustrated in Figure 1.



Legend: Entrepreneurial orientation: A-autonomy, RT-risk-taking, I-innovativeness, and CA-competitive aggressiveness; Organizational competencies: RA-resource allocation, O/TF-operations/technology focus; Market orientation: CuO-customer orientation and CoO-competitor orientation; Learning orientation: FL-facilitated leadership and SP-decentralized strategic planning; Institutional Context: EE-economic environment, PE-political environment and SCE-socio-cultural environment; and Innovative orientation: PIO-product innovative orientation, MIO-market innovative orientation, TIO-technology innovative orientation, BIO-behavioral innovative orientation and SIO-strategic innovative orientation

Figure 1. Summary of the operational framework (adopted from Reyes (2017))

The independent variables tested for this study that were extracted from the 2014 GEM APS are composed of entrepreneurial orientation (Lumpkin & Dess, 1996) involving the following traits: proactiveness, autonomy, risk-taking, and innovativeness. The set of dependent variables include types of innovative orientation such as product, market, and technology. The moderating variables used include the entrepreneur's income and capital to proxy for the economic environments and socio-cultural environment (i.e., career choice, social status, and media); and the dependent variables consisted of types of innovative orientation such as product, market, and technology.

To probe for other variables that influence innovative orientation which the 2014 GEM APS data cannot provide, a focus group discussion (FGD) was undertaken among selected MSMEs of Region III to confirm if the addition of 1) competitive aggressiveness (Lumpkin & Dess, 1996); 2) organizational competencies from Siguaw, Enz, and Simpson (2006) composed of resource allocation and operations/technology focus and 3) market orientation in terms of customer orientation and competitors orientation (Narver and Slater's (1990) to the set of the independent variables extracted from the 2014 GEM APS composed of proactiveness, risk taking, autonomy, and innovativeness would significantly affect the set of existing dependent variables from the 2014 GEM APS (product, market, and technology innovation) with the addition of behavioral and strategic innovative innovation (Wang & Ahmed, 2004, pp. 2-4). The additional moderating variables from Siguaw et al. (2006) include learning orientation through facilitated leadership and decentralized strategic planning; and political environment involving government programs on entrepreneurship.

Methodology

Research Design

To test the quantitative and qualitative data generated by this study, the sequential explanatory mixed methods strategy was deployed to determine if the combination of the 2014 GEM APS quantitative data and the additional qualitative data from the FGD composed of competitive aggressiveness, organizational competencies, and market orientation can cause the innovative orientation composed of

product, market, technology, behavioral and strategic innovation performance of MSMEs in Region III. According to Creswell (2012), the mixed method is appropriate for combining and integrating quantitative and qualitative data collected into a single, robust analysis. By using the sequential explanatory strategy, both the quantitative and qualitative data can be gathered and examined resulting in the validation of the hypotheses generated in the quantitative research phase with the qualitative data through a focus group discussion. This method validated the quantitative results by helping explain unexpected results through follow-up interviews or focus group discussion.

Data for this study were collected in two phases: First, the 2014 GEM APS data were analyzed by testing the hypothesized causal relationship between entrepreneurial and innovative orientation with the moderating effect of institutional context. The results of the hypotheses testing were used to conduct an in-depth qualitative study through the conduct of FGD among selected MSME owners of Region III for possible explanation of the quantitative results. Specifically, the FGD results in the qualitative phase were used with the quantitative results to provide better understanding of the outcome (Creswell & Plano Clark, 2003) to gather the opinions or insights of people, such as the MSME owners of Region III, on specific innovation and entrepreneurial orientation that influence their innovation activities. This study, according to Krueger (1988) harnessed the FGD's strength of allowing the participants to express their opinions, ideas and positions on a certain issue or topic and eventually arrive at a group insight on the issue at hand against the similarities and differences that exist in terms of their experiences and practices.

Quantitative Research Stage

The quantitative research stage investigated the causal relationship that exists between entrepreneurial orientation and the innovative orientation of MSMEs in Region III. This stage tested the following hypotheses:

Hypothesis 1: Entrepreneurial orientation, as measured by the combination of proactiveness, autonomy, risk-taking, and innovativeness, leads to innovative orientation among 2014 GEM APS Region III respondents.

Hypothesis 2: Institutional context comprised of the economic environment factors, enhances

the entrepreneurial orientation that leads to innovative orientation among 2014 GEM APS Region III respondents.

Hypothesis 3: Institutional context, comprised of the socio-cultural environment, enhances the influence of entrepreneurial orientation on innovative orientation.

Quantitative analysis of the data employed the multinomial logistic regression (MLR) procedure because the GEM data were composed of nominal data (Hair, Anderson, Tatham, & Black, 2008). This multinomial regression estimates k-1 multiple linear regression tasks described as

$$\text{logit}(y = 1) = \log\left(\frac{p(y = 1)}{1 - (p = 1)}\right) = \beta_0 + \beta_1 \cdot x_{i2} +$$

$$\beta_2 \cdot x_{i2} + \dots + \beta_p \cdot x_{in} \text{ for } i = 1 \dots n.$$

Where

$\text{logit}(y=i)$ = is the k-1 log odds of each category used per multinomial test

β_0 = is the intercept, this is the multinomial logit estimate when the model's predictor variables are at zero levels

β_1 = multinomial logit estimate for a one unit increase in the variable used, given that the other variables in the multinomial logit model are held constant

X_{in} = set of explanatory variables (income, capital, career choice, social status, and media)

The multinomial logistic regression was an appropriate technique to determine the effects of the set of independent variables for entrepreneurial orientation (proactiveness, autonomy, risk-taking, and innovativeness) on the set of dependent variables for innovative orientation (product, market, and technology innovation). The multinomial logistic regression interaction effects of institutional context such as economic environment factors (income and capital) and socio-cultural environment (career choice, social status and media) on entrepreneurial orientation leading to innovative orientation. To gauge if the regression model has a good fit and significant, at least 20% coefficient of determination (adjusted R^2) and the generated p-value at less than or equal to 0.05 should be generated (Filho et al., 2013, p. 34).

Qualitative Phase

Propositions were generated for the qualitative data analysis of factors excluded from the 2014 GEM APS. These propositions were tested through an FGD composed of 25 entrepreneurs belonging to the nascent owner-managers of new and established businesses in Region III. Ethical clearance was requested from the 25 entrepreneurs who have participated in the series of seminars conducted by Department of Trade and Industry. Permission was sought for the voluntary participation in the FGD conducted by the researcher. All participants were assigned with pseudonyms to protect their identity. An assurance was given to participants that the information provided will be treated with strict confidentiality. The following propositions were tested using the FGD results:

Proposition 1: Entrepreneurial orientation, a composite measure of competitive aggressiveness, causes innovative orientation.

Proposition 2: Organizational competencies cause innovative orientation.

Proposition 3: Market orientation causes innovative orientation.

Proposition 4: Learning orientation enhances organizational competencies and market orientation causes innovative orientation.

Proposition 5: Political environment enhances organizational competencies and market orientation causes innovative orientation.

The FGD results were analyzed following the protocol below (Creswell, 2012):

1. Identified similar phrases or comments based on FGD report transcription for all guide questions use for all variables.
2. Consolidated phrases or comments into common themes.
3. Common themes are organized into a tabular presentation.

Mixed Method Phase

Using data transformation (Creswell, 2012 p. 218) as one of the most popular mixed method data analysis approaches, the researchers quantified the qualitative data by creating codes and themes that can directly compared with the quantitative data. Thus, the quantitative data which constitute the hypotheses test

results were compared with the quantified qualitative data were plotted graphically where the horizontal axis denoted the adjusted R^2 and p-value generated by each model or hypothesis to denote the explanatory power of the set of independent variables (entrepreneurial orientation constructs) in explaining the variations in the set of dependent variables (product, market and technology innovation). The graph's vertical axis indicated the quantified qualitative data on the ratio of FGD participants who expressed agreement and disagreement on the hypothesis test results over the total FGD participants. The merging of the quantitative data from the hypothesis tests of 2014 GEM APS data and qualitative data from the FGD results in a graph is for ease of interpretation and analysis of the two types of data generated for the study.

Sampling Design

Based on the study of Reyes (2017), the quantitative data were taken from the 2014 GEM APS data of the Region III respondents while the qualitative data were collected from the 25 nascent owner-managers of new and established businesses invited for the FGD to explore the factors that lead to the innovative orientation of MSMEs in Region III. The choice of entrepreneur-participants for the FGD followed Creswell's (2012, p. 217) qualitative data collection procedure of selecting participants who have experienced the "central phenomenon" of being MSME business owners located in Region III.

Results

Reyes (2017) generated the demographic profile of the 2014 GEM APS respondents from Region III using the frequency and percentage distribution of responses. Table 1 shows that majority of the respondents are between 35–54 years old, females, high school graduates and are engaged in retailing business.

The firm's age or years in business is measured by the firm's number of years since it was founded (Gulati & Higgins, 2003 as cited by Reyes, 2017). The researchers used the firm's number of years as a proxy to nascent, new business, and established business. Majority or 71% of the respondents are owner managers of new business; 40 or 24% are nascent entrepreneurs; 121 or 71% are owner-managers of new businesses, and 9 or 5% are owner-managers of established businesses.

Causal Analysis

From the 2014 GEM APS data, Reyes (2017) found that the product innovative orientation registered a higher adjusted R^2 (0.510) compared to market (0.486) and technology (0.480) innovative orientation, which means that the explanatory power of product innovative orientation is higher than market and technology innovative orientation indicating that Region III MSMEs are selling products which customers find unique and unfamiliar.

To determine the degree of relationship that exists between entrepreneurial orientation and innovative orientation, parameter estimates of entrepreneurial orientation variables causing innovative orientation is shown in Table 3. Reyes (2017) surmised that those innovative entrepreneurs are expected to increase their product innovative orientation than proactive and autonomous entrepreneurs as long as their customers see all or even just some of their products and services as new and unfamiliar. In addition, Reyes (2017) concluded that innovative entrepreneurs who perceived that few to many of their competitors are selling the same products and services" are expected to increase their market innovative orientation than autonomous entrepreneurs. Meanwhile, proactive and autonomous entrepreneurs who have been using "technologies between one and five years" tend to have a decreasing technology IO (Reyes, 2017).

Qualitative Analysis

Competitive aggressiveness. The FGD results provide evidence that entrepreneurial orientation, a composite measure of competitive aggressiveness, causes innovative orientation (P1). In the validation of proposition 1, all MSMEs agree that competitive aggressiveness is important entrepreneurial orientation variable causing innovative orientation. They believed that competitive aggressiveness is an important entrepreneurial orientation variable in addition to proactiveness, autonomy, risk-taking, and innovativeness.

Networking abilities. The MSMEs emphasized the need for networking abilities to explore market opportunities where competition is very stiff. This has been mentioned by respondents for their desire to increase their sales.

Passion in doing business. Most of MSMEs mentioned passion in doing the business as one trait that entrepreneurs should possess. Most of MSMEs

Table 1. *Region III MSME Nascent and Established Business Owners' Demographic Profile (Reyes, 2017)*

Demographic	Nascent Entrepreneurs		Owner-Managers of NBs		Owner-Managers of EBs		Overall	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Age								
18-24	4	10.0	7	5.8	0	0.0	11	6.5
25-34	9	22.5	27	22.3	2	22.2	38	22.4
35-44	12	30.0	32	26.4	2	22.2	46	27.1
45-54	11	27.5	36	29.8	4	44.4	51	30.0
55-64	4	10.0	18	14.9	1	11.1	23	13.5
No answer	0	0.0	1	0.8	0	0.0	1	0.6
Total	40	100.0	121	100.0	9	100.0	170	100.0
Gender								
Male	14	35.0	48	39.7	3	33.3	65	38.2
Female	26	65.0	72	59.5	6	66.7	104	61.2
No answer	0	0.0	1	0.8	0	0.0	1	0.6
Total	40	100.0	121	100.0	9	100.0	170	100.0
Marital Status								
Single	10	25.0	24	19.8	1	11.1	35	20.6
Married	30	75.0	96	79.3	8	88.9	134	78.8
No answer	0	0.0	1	0.8	0	0.0	1	0.6
Total	40	100.0	121	100.0	9	100.0	170	100.0
Education								
Primary/Elementary	5	12.5	19	15.7	2	22.2	26	15.3
Secondary/High School	17	42.5	56	46.3	3	33.3	76	44.7
Post-Secondary/ Vocational	4	10.0	14	11.6	1	11.1	19	11.2
College	14	35.0	30	24.8	3	33.3	47	27.6
No answer	0	0.0	2	1.7	0	0.0	2	1.2
Total	40	100.0	121	100.0	9	100.0	170	100.0

are new in the business. They started their businesses because of their desire to augment the family income. Because of their love for the family, they are willing to make sacrifices to keep the business. Eventually, they develop love and enjoyment doing it.

Organizational competencies. The FGD results validated the second proposition that organizational competencies lead to innovative orientation. Based on the results of FGD, all MSMEs agreed that attendance to seminars conducted by Department of Trade and Industry (DTI) provided additional knowledge on innovations and improvement of the business. The improvement in the products

and processes of MSMEs was learned through attendance in a series of seminars conducted by DTI such as preparation of business plan, basic accounting and bookkeeping, product costing, food safety, and market opportunities and networking with customers and other entrepreneurs.

Market orientation. The third proposition that market orientation lead to innovative orientation was validated as the MSME owners in Region III possess knowledge of their market environment. Reyes (2017) cited Narver and Slater (2000) defining market orientation as the superior understanding of customers' needs and preferences at all times, thus providing them

Table 2. *Multivariate Analysis of the Determinants of Innovative Orientation (IO) Types (Reyes, 2017)*

Model	Variables	-2 Log Likelihood	Chi-Square	df	p-value	Adjusted R ² (McFadden)
Product IO	Product IO	41.415	122.986	8	0.000	0.510
	Income	41.373	123.028	8	0.000	0.510
	Capital	41.415	122.986	8	0.000	0.510
	Career Choice	41.058	135.362	8	0.000	0.561
	Social Status	52.208	149.062	8	0.000	0.618
	Media	41.334	123.067	8	0.000	0.510
Market IO	Market	37.692	97.288	8	0.000	0.486
	Income	33.636	101.344	8	0.000	0.506
	Capital	37.692	97.288	8	0.000	0.486
	Career Choice	31.278	118.924	8	0.000	0.594
	Social Status	35.701	149.556	8	0.000	0.747
	Media	33.374	101.606	8	0.000	0.507
Technology IO	Technology IO	34.085	102.378	8	0.000	0.480
	Income	34.783	102.378	8	0.000	0.480
	Capital	34.052	103.109	8	0.000	0.483
	Career Choice	33.511	106.805	8	0.000	0.501
	Social Status	35.317	117.432	8	0.000	0.551
	Media	34.085	102.378	8	0.000	0.480

with product and market solutions better than that of competitors.

Learning orientation enhances organizational competencies and market orientation. The fourth proposition was validated by Reyes (2017) that learning orientation enhances both organizational competencies and market orientation, thereby causing innovative orientation. The results also validated the fifth proposition that political environment conditions lead to innovative orientation. Based on the results of FGD conducted by Reyes (2017), the conditions pervading the political environment in Region III, through the government programs for MSMEs, is promoting and supporting businesses in micro, small, and medium scale to help them upgrade their products in order to survive the competition. Both organizational competencies and market orientation are enhanced by the government entrepreneurship programs being implemented in Region III.

Mixed Method Analysis

Using the mixed method analysis, the significant entrepreneurial orientation variables that led to product innovative orientation for both the causal

and qualitative analyses were innovativeness (motivation), proactiveness (perceived opportunity), autonomy (perceived capabilities), and risk-taking (fear of failure). Significant entrepreneurial orientation variables that led to market innovative orientation was proactiveness (perceived opportunity) while none of the entrepreneurial orientation variables were found to influence technology innovative orientation.

Conclusion and Recommendations

The GEM respondents were 170 entrepreneurs in Region III while 25 participated in the FGD, who are all engage in micro enterprises. The majority of them belongs to middle-aged group, female, married, finished High School and College level. These entrepreneurs have been in the business for 3 ½ years. Most of these entrepreneurs engage in selling consumer products. Balut, fish, kakanin and street food businesses are not legally registered.

Entrepreneurs in Region III are driven by necessity because of their desire to help augment family income. They considered entrepreneurship as a desirable career

Table 3. *Multivariate Analysis of the Different Types of Innovative Orientation (Reyes, 2017)*

Types of IO	Categories	Variables	Coefficient estimate	p-value	
Market		Intercept	74.09	0.98	
		Career Choice	-18.74	0.00	
		Social Status	-19.14	0.00	
		Many business competitors	Media	-45.75	0.00
			Autonomy	-5.02	0.01
			Capital	-1.00	0.01
			Innovativeness	2.83	0.01
		Few business competitors	Capital	0.57	0.01
			Intercept	33.23	0.98
			Innovativeness	1.99	0.04
Capital	0.40		0.04		
Technology	Technologies are available less than a year	Intercept	145.60	0.97	
		Social Status	-55.21	0.00	
	Technologies are available between one and five years	Intercept	54.41	0.00	
		Proactiveness	-2.53	0.00	
		Income	-2.53	0.00	
		Capital	-0.51	0.00	
		Career Choice	-2.21	0.01	
		Social Status	-1.76	0.03	
		Media	-2.53	0.00	
		Autonomy	-17.19	0.00	
		Income	-16.68	0.00	
		Capital	-3.39	0.00	
		Income	-16.89	0.00	
		Capital	-3.43	0.00	
		Career Choice	-18.07	0.00	
		Social Status	-18.79	0.00	
		Media	-17.82	0.00	

choice. Entrepreneurship is considered in Region III as an instrument to improve one's economic and social status. Successful entrepreneurs are given high regards in society and media exposure. Majority of them see their geographical locations conducive to entrepreneurship, and believe they have the capabilities to start a new business leading them to have a low perception of failure in starting a business.

For factors causing innovative orientation found in GEM, with or without the interaction of effects of economic and socio-cultural environment, entrepreneurs in Region III should demonstrate innovativeness (motivation), proactiveness (perceive opportunity), autonomy (perceived capability) and risk-taking (fear of failure) to be a product innovative oriented while proactiveness to be a market innovative

Types of IO	Categories	Variables	Coefficient estimate	p-value
Product	All of the products and services are new and unfamiliar	Intercept	103.69	0.98
		Proactiveness	-9.83	0.00
		Income	-9779.00	0.00
		Career Choice	-9.27	0.00
		Social Status	-7.29	0.00
		Media	-9.73	0.00
		Social Status	-25.19	0.00
		Innovativeness	2.96	0.00
		Income	2.95	0.00
		Capital	0.59	0.00
		Career Choice	2.94	0.00
		Social Status	3.45	0.00
		Media	2.94	0.00
		Intercept	48.13	0.00
		Proactiveness	-6.67	0.00
		Income	-6.62	0.00
		Capital	-1.33	0.00
		Career Choice	-6.11	0.01
		Social Status	-4.33	0.00
		Media	-6.57	0.00
Some of the products and services are new and unfamiliar	Autonomy	-4.70	0.01	
	Income	-4.64	0.01	
	Capital	-0.94	0.01	
	Career Choice	-4.55	0.01	
	Social Status	-2.59	0.03	
	Media	-4.58	0.01	
	Income	-6.62	0.00	
	Innovativeness	1.36	0.04	
	Income	1.35	0.04	
	Capital	0.27	0.04	
	Career Choice	1.34	0.05	
	Social Status	3.45	0.00	
Media	1.35	0.05		

oriented. However, these entrepreneurs have a very low technology innovative orientation because most of them do not need technology to operate their businesses and make small income out of their businesses. The a-priori belief that EO has a positive relationship to

innovation which according to Lumpkin and Dess (1996), “innovation is an essential activity that can be improved significantly by increasing the adoption and implementation of EO since one important aspect of it is the development of new product, processes...”

(p.138). However, the findings of this study showed that entrepreneurs in Region III who demonstrate entrepreneurial orientation are those who have the tendency to be a product innovative oriented. Other types of IO, such as market and technology, were not established to demonstrate entrepreneurial orientation.

For other variables of EO that significantly cause the IO of MSMEs in Region III, competitive aggressiveness was found important determinant of EO. Entrepreneurs in Region III are aggressive in continuously searching for the improvement of their products to cope with their competitors. In addition to proactiveness, autonomy, risk-taking and innovativeness, competitive aggressiveness was considered important variable of EO causing IO. Another variable believed to be important determinant of EO causing IO as revealed by MSMEs in Region III was networking ability. Regardless of the nature of business, networking can be used to explore the market opportunities of the business, at the same time, establish connections with customers, government and other entrepreneurs which eventually make the business known and general sales. Passion in doing business was also identified as another EO variable that causes IO. MSMEs in Region III are passionate entrepreneurs who are willing to make sacrifices to sustain the business. Commitment to business and love for customers and family are the reasons why they never get tired of doing their businesses.

To further improve the entrepreneurial orientation of MSMEs in Region III, Reyes (2017) recommended participation in various DTI projects and programs such as the Kapatid Mentor Micro Entrepreneurs (ME) Program of DTI, in partnership with Go Negosyo who serves as mentors of MSMEs. MSMEs can apply at DTI to be included in the said mentoring program where they will be enrolling in modules design for their respective businesses. Regular attendance and availment of these regular seminars will improve MSME's competitiveness which fulfills the DTI mandate of promoting entrepreneurship and innovation as catalyst for change needed by the Philippine economy.

MSME owners in Region III should also help themselves and others in stimulating entrepreneurial spirit through conduct of innovative activities in the region. MSME owners who have gained considerable success are encouraged to volunteer in sharing their experiences with other MSME owners especially

those in the startup phase during regular forums and seminars conducted by DTI. MSME owners who have gained considerable success can volunteer as subject of research activities such as publication of case books to share their best practices with other entrepreneurs as well as with the students in the universities taking up entrepreneurship programs.

As there are more women engaged in entrepreneurship in Region III, a collaboration of the academe, the government, and private sector is a must towards driving women entrepreneurship. The entrepreneurship program should be included in the basic and higher education curriculum, highlighting it as a good career choice considering the employment problems in Region III. Possible research on women engaged in micro enterprises is also recommended because most of the studies conducted involving successful women entrepreneurs belong to small and medium enterprises.

Businesses in Region III that are not registered in the government must be monitored. As they are not in the government records, programs for MSMEs provided by the government institutions cannot reach them. These businesses need most of the help of the government in terms of seminars and mentoring program conducted by DTI and Go Negosyo. The local government units must identify and prepare a list of their constituents operating in an underground economy to be given the necessary assistance by the government.

There is an increasing number of people who engage in microenterprises in Region III. There should be alternative funding support that can be provided to them aside from banks and other microfinancing credit services that impose high interest rates. The government should initiate the establishment of cooperatives. The Kapatid Mentor ME Program of the government should partner with cooperatives in the Region to extend the needed capital of the mentees in support of the improvement of their businesses.

Lastly, Reyes (2017) recommended the consolidation of efforts of various government agencies such as DTI, Department of Science and Technology and the Commission on Higher Education in partnering with schools and universities in Region III particularly in the areas of market and product research and training. Both DTI and Department of Science and Technology offer different forms of training, research, financial, facility loan, and technology to both the universities and

MSME owners. The Commission on Higher Education should include MSMEs owners as both catalyst for changing the entrepreneurship curriculum and recipient of training conducted in higher education institutions (HEIs). The HEIs in partnership with these agencies can become catalyst for enterprise development in the region by conducting their community involvement programs and activities involving MSME owners in their areas.

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