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Structural Equation Model on Supply Chain Performance of the Manufacturing Sector: An Explanatory Sequential Mixed Methods Study

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ABSTRACT: Supply Chain Performance (SCP) is affected by factors including supply chain structure, market conditions, among others. SCP will define profitability, growth, and sustainability, but is varied in level among different industries. The primary purpose of this explanatory sequential mixed-methods study was to determine the best fit model of Supply Chain Performance (SCP) in the manufacturing sector of Region XI in the Philippines. The survey was administered to 332 manufacturing companies across the region employing stratified random sampling. After analyzing the quantitative data through structural equation modeling, us17 interviewees selected from the 332 respondents, were subjected to an in-depth interview, and focus group discussion for validation of the results. The data obtained from the interview were analyzed through thematic analysis. The quantitative results revealed that out of the five exogenous variables tested for the best fit model on SCP, only three came out as having direct influence, to wit: buyer-supplier relationship (BSR), integrated information system (IIS) as the best predictor, and logistics performance (LP). The modest direct influence of LP on SCP was strengthened with its indirect influence through IIS. Thematic analysis of the qualitative data unveiled the essential themes generally confirming the best fit model and its particulars. Connecting-merging-confirmation surfaced as the nature of data integration.

KEYWORDS: business management, structural equation modeling, buyer-supplier relationship, integrated Information system, logistics performance, supply chain performance, Philippines.

1. INTRODUCTION

In the contemporary setting, supply chain performance (SCP) is one of the most vital concerns in various industries like the manufacturing sector (Anand & Grover, 2015; Govindan et al., 2017; Luthra and Mangla, 2018). It pertains to the efficiency and effectiveness in the different business processes and activities involved in creating products from raw materials to finished goods delivered to the ultimate consumer (Marinagi et al., 2015). SCP in the manufacturing industry is beset with issues and challenges, including high logistics cost, operations complexity, lack of capacity versus demand, and constantly changing needs of the markets (Daugherty and Closs, 2016). Moreover, the increase in manufacturing cost is caused by visibility issues in the supply chain where firms work in silos lacking collaboration (Wilson, 2017), affecting financial performance and sustainability (Pakurar et al., 2019), and competitiveness (Power, 2005). In the Philippines, logistics cost is the most expensive among Southeast Asian Nations at 27.16% as a percentage of sales (Factao, 2019).

The importance of SCP is that when firms are effective and efficient, firms establish competitive advantage and sustainability (Barbosa-Póvoa et al., 2017; Fritz et al., 2016; Castillo et al., 2018). Competitive advantage is necessary as market competition is intense, innovation is fast, customer behavior is ever-changing, and sustainability of the supply chain is needed for the firm's social, environmental, and economic development (Pagell and Shevchenko, 2014; Gold and Schleper, 2017). The social value of this study is on the impact of the outcome and its importance when shared with different firms and stakeholders, resulting in the firm's improved supply chain performance. In turn, it will result in the sustainability of the firm and economic benefits to people in terms of labor and continuous business for suppliers (Levinson, 2018).

In this study, SCP is measured by buyer-supplier relations (BSR), world-class manufacturing (WCM), logistics performance (LP), integrated information systems (IIS), and supply chain resilience (SCR). The relationship of these variables is that when each structure is excellent and collaborates, SCP excellence is achieved. BSR provides positive results, has potential for cost savings,

enables superior performance, and brings sustainability to the firms (Forslund, 2014; Kumar and Rahman, 2015; Hingley et al., 2015). WCM ensures competitive advantage, supply chain flexibility, and excellence, improve customer service ratings, decreases volume errors, streamlines processes, and reduces inventory levels, which ultimately results in excellent SCP (Kersten and Saeed, 2015; Hami et al., 2015; Levinson, 2018; Liu and Lee, 2018). LP leads to channel-wide efficiencies, positive business results, and financial capabilities. It creates value for customers, productivity, and profitability (Goel, 2020). IIS supports the firm by providing accurate and on-time data as inputs to processes, decision analysis, speed, and accuracy, and enhances SCP (Gonzalvez-Gallego et al., 2014). Finally, SCR supports business profitability (Ponis and Koronis, 2012) and manages risks, and resists disruptions (Fiksel et al., 2015; Melnyk et al., 2010; Qian et al., 2018), ultimately influencing SCP (Jain et al., 2017). The several variables researched to impact SCP have caused the researcher to use the Structural Equation Model (SEM) to understand the direct and indirect relationships of the variables. The study of Bag (2015) emphasized the importance of SEM in understanding the studied construct, especially in multivariate studies.

The review of published literature on SCP helped identify the research gaps. First, a gap is present in limited research on the four variables BSR, WCM, LP, and IIS studied together. Among the literature reviewed, common topics include SCM strategy, framework, trends, challenges, transportation and logistics, time-based strategy, quality, and outsourcing (Jain et al., 2010). Parmar and Shah (2016) conducted a literature review, and the common themes include barriers to the supply chain, operations and leadership-related, and political instability as a resilience-related barrier. Moreover, Zhao et al. (2020) reviewed three studies that focused on sustainability and resilience. This research is unique as it will study supply chain structures simultaneously in one study. The researcher had not come across such a study in related literature.

The second gap is the need for geographical-context research. Globally, supply chain studies abound since the 1990s, focused primarily on supply chain integration (Pagell, 2004). Many companies' supply chain integration effort was not coupled with studies on the impact of integration and the supply chain performance impact on the firms, especially in the Philippine setting and specifically in Davao Region. It must be the reason why I had not come across a study similar to my undertaking. This study could contribute to the existing body of literature globally, nationally, and regionally.

Finally, the research gaps highlighted, the importance of this study to the manufacturing sector in the Philippines, the multivariate nature of the study, and the use of mixed methods approach altogether make this study unique. The result of this study will be presented in an international forum, specifically on operations management, logistics, and supply chain.

This research addressed the knowledge gap of understanding the relationship of excellence in the SCP from the supply chain structures – BSR, WCM, LP, IIS, and SCR. The use of the mixed methods approach in this study will help the researcher find the best fit model of SCP applied to the manufacturing companies in the Davao Region.

2. METHODOLOGY

This study utilizes the Mixed Methods (MM) approach. The quantitative section used the structural equation model in this study, while phenomenology was used in the qualitative section. In a sequential explanatory mixed-methods study, the research approach was to conduct the quantitative research first, followed by the qualitative data collection and analysis. Then, the findings were integrated, and inferences were drawn, such as triangulation in a study (SAGE Publications, 2016). Fig. 1 below shows the phases of the explanatory sequential design below.

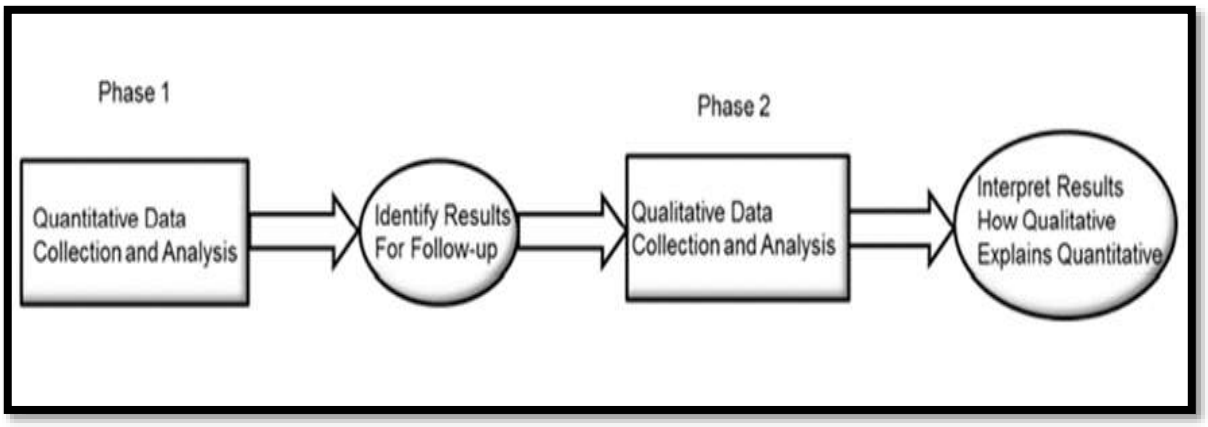

Fig. 1. Explanatory Sequential Design (Two-Phase Design)

(Adapted from Creswell, J. W. & Creswell, J. D., 2018)

The MM approach, in relation to worldview lens, is faced with objections from among the researchers. Some posited that there is a presence of epistemological incoherence in the worldview lens of MM, specifically in qualitative and quantitative inquiry, which cannot be combined to give meaning to the study (Blackwood et al., 2010; Wong et al., 2013). However, worldview is a human mindset and not bound by data and analysis; thus, this should not hinder conducting mixed methods that follow quantitative and qualitative inquiry approaches.

Explanatory sequential design (EXPLA-SD) begins with the quantitative data collection and analysis phase, followed by collecting qualitative data to explain the quantitative results (Creswell and Plano Clark, 2011; Schoonenboom et al., 2017). The purpose of EXPLA-SD in the literature included the confirmation or complementarity of quantitative and qualitative studies (Herzog and Boomsma, 2009). Confirmation means verifying data (Jackson, 2007), while complementarity is the ability of one type to compensate for the other (Green, 2016). It also provided two different perspectives and comprehensively reviewed the analysis (Creswell, 2014).

As a process, EXPLA-SD came with the quantitative study as the first phase where a survey questionnaire (SQ) instrument was utilized. In the context of this study, the SQ's were adapted from published research to measure BSR, WCM, LP, IIS, SCR, and SCP. After the collection of data, they were subjected to a structural equation model (SEM) process. Bag (2015) defined SEM as the family of statistical models that seek to explain the relationships among multiple variables. In the study of Bag (2015), he identified the two major types of SEM and the many definitions of it from different authors and its application in various industries and its benefits. Moreover, SEM is an excellent tool to understand a construct and its relationships with other variables, especially in a multivariate study like Habib (2014), where SEM was systematically used to investigate the input, output, and process of the tertiary academic institutions.

In the second phase, the qualitative study used phenomenology to establish categories and themes obtained through the primary collection and data analysis, as explained in the study of Teddlie and Tashakkori (2009). The phenomenological approach focused on the lived experiences of the supervisors, managers, CEOs, and owners of the businesses. Specifically, this phase was directed towards learning from the participants' standpoints, experiences, opinions, and behaviors towards ensuring supply chain performance in the various supply chain structures. Finally, the different influences of the managers' views, attitudes, beliefs, and behaviors towards firms' SCP were deducted from the participant's responses, especially those that influence efficient SCP behaviors.

In this final phase of the MM approach, a methodological triangulation was used, mixing the two methods used in data collection and analysis (Hesse-Biber, 2010). According to Guest (2013), the triangulation process involved examining the validity of results comparing quantitative or qualitative data results, aiming to understand the complementarity of the findings from different data sources and understand the construct studied from a broader perspective. The mixing procedure was done through the integration of the quantitative and qualitative data findings of the study. It helped generate a complete result with two partial study outcomes.

The purpose of triangulation in a study, especially in a mixed-methods approach, is varied. According to Bernhard et al. (2019), it is to help understand possible relationships of constructs. In some research only focused on correlations, there is a possibility that a construct could only be understood from a correlation perspective. It may not be fully understood from correlation in multi-attributes construct, but a more profound understanding is provided when triangulated.

Another purpose of triangulation is to mitigate the bias in a construct (Fush et al., 2018). The authors used the study of Denzin and Lincoln (2011) to highlight the purpose of triangulation. The study of Denzin (2015) posited that triangulation serves as the bridge between quantitative and qualitative epistemologies. Also, other purposes of triangulation include exploration of the different facets and conditions of a phenomenon, maximization for data saturation (Fush et al., 2018), improve validity and reliability (Turner et al., 2017), and the cross-checking of data to assess the consistency of information from different sources (Olson et al., 2016).

The study was conducted in Davao Region in Mindanao, which includes the provinces of Davao del Sur, Davao del Norte, Davao de Oro, Davao Oriental, and the City of Davao, excluding Davao Occidental, which was not open to visitors during the conduct of the survey.

In the quantitative strand, the total number of manufacturing companies provided by the Department of Trade and Industry (DTI) is 1,064 manufacturing companies. A total of 80 companies were chosen and requested to participate in the survey, but only 47 approved the request to conduct the study. The companies covered in the study were manufacturing companies from the sub-categories, food manufacturing, food packaging manufacturing, and agricultural manufacturing companies in Davao Region. The sampling method used was stratified random sampling allowing everyone in the population of interest to have an equal chance to be selected as a research respondent.

Thus, using geographical representations, the 332 respondents were selected from different provinces, including Davao City, where 216 were chosen from among the companies from Davao City, 38 respondents from the companies in Davao del Norte, 33 from Davao del Sur, 25 from Davao Oriental and 20 from Davao de Oro. There were none from Davao Occidental due to the limitation of accessibility in identifying the respondents' names, telephones, mobile numbers, and addresses. Davao Occidental restricts entry for non-residents of the province; however, it subjects all entrants to a 14-day quarantine if it allows. The purpose of geographical representation is to ensure randomness is further established.

In the quantitative strand, the total respondents were 332 from 47 manufacturing companies covered in the study. The total manufacturing companies provided by the DTI were categorized according to sub-manufacturing categories found in Davao Region, including food, food packaging, non-food packaging, agricultural, chemical, lumber and wood, furniture and fixtures, buildings, and structures, apparel, and metal fabrication. A survey questionnaire subjected to expert review of a panel was utilized to generate responses using 5-point Likert scale. The results were subjected to a descriptive analysis using interpretation table. In addition, the survey toool was subjected to a pilot study where the Chronbach's alpha was computed and presente in the succeeding section.

Majid (2018) said using the eligibility criterion helps determine an individual's qualification to participate in a study. In this study, the inclusion criteria include employees of medium and large size manufacturing companies, employed in the company for more than five years, the company's manufacturing plant is located within Davao Region, the respondent is in a position of supervisory, managerial, CEO or owner of the business, and the industry is registered legally. The term medium and large size companies come from the definition of the DTI, Philippines.

The exclusion criteria included non-regular employees to mean consultants, expatriates, non-executive directors working with the company under a contractual relationship with a specific term, employees of a third-party agency operating outside or within a company, employees whose manufacturing firms are situated outside of Davao Region, and foreigners were working in the company.

The Human Resource Managers or Supervisors made the specific selection of the respondents following a set criterion. Moreover, the respondent's profiles were checked if they pass the eligibility criterion, and the 332 chosen respondents were the ones who passed.

However, some companies closed in the process; some were almost closing due to the Covid-19 pandemic. At the same time, others rejected the letter for several reasons, like not accepting surveys as a company policy; approval is from outside of the region, while others rejected due to information confidentiality.

In a study on sampling procedure in quantitative research, Hair (2017) recommended 300 respondents with valid responses to establish reliability. Following Hair (2017), the sample size of the study was 332. The excess was to provide a safe margin. Moreover, the 332 respondents established research reliability because if the sample size is more than 250. According to Delice (2010), a sample of more than 250 helps establish research reliability. Rahi (2017) highlighted the importance of sample size and carefully treated it, especially structural equation modeling studies.

In the qualitative strand, the total number of participants involved in the In-Depth Interview was 10 participants and seven participants for the Focused Group Discussion. In the qualitative section of the research, in-depth interviews (IDI) and focus group discussion (FGD) helped shed light on the participants' opinions and behaviors. In this section, the researcher utilized an interview guide subjected to panel review.

It was underscored in the study of Creswell (2014) on the significance of the use of IDI and FGD in research to give meaning to the constructs studied. The understanding of SCP was viewed from a phenomenological perspective. The IDI participants were selected using purposive sampling from among the quantitative research participants and the seven participants of the FGD. The selection of participants was conducted using the respondent's responses in the quantitative survey. Specifically, respondents with a very high rating and a very low rating in the quantitative survey were identified and asked to participate in the IDI and the FGD.

The participants for the IDI included three from Davao City, two from Davao del Norte, two from Davao del Sur, one from Davao Oriental, and two from Davao de Oro. The seven FGD participants were taken from among the quantitative research respondents too. IDI was conducted face-to-face, while the FGD was conducted virtually using the google meet platform.

Validity refers to how the concept is accurately measured that accurately reflects its intended measure (Evers, 2018). It stems from the appropriateness, thoroughness, and effectiveness of the methods applied and the importance of thoughtful weighing of the evidence rather than using a particular set of rules or adherence to an established tradition (Bazeley, 2004). Validity is the most crucial step in a research process, according to Caruth (2013). To establish the reliability of the adapted instruments, the questions were contextualized to the local setting. The computed Cronbach's alpha was .90, implying high reliability.

Using the explanatory sequential design of mixed-methods research began with data collection of the quantitative data followed by qualitative data collection. The data gathering for the quantitative procedure ensued through survey questionnaires (SQ) distribution to more than 600 survey participants from 80 manufacturing companies. However, only a total of 47 companies returned the SQ which generated 332 respondents. The several request disapproval were due to various reasons like the company has already ceased production operations either permanent or temporarily because of the Covid-19 pandemic, the company is about to close, the company rejects surveys as a company policy, survey approval is centralized at the corporate office in Metro Manila. It may take months to approve, among other reasons. There were 33 companies who disapproved of the request for the survey, while 47 manufacturing companies approved the demand for the conduct of the survey.

The actual survey activity began by identifying the company's names randomly from the list of companies provided by the Department of Trade and Industry. The researcher sought approval through a request letter addressed to the human resource manager of the different companies from the list. The request letter already included the ICF and the survey tool to maximize the distribution time. As soon as the company approves, the company's human resource manager acts as the gatekeeper of identifying the names of the supervisors, managers, directors, or owners to participate in the survey. However, should the company reject the request, the researcher picks up the returned forms.

The administration of the survey employed the physical survey administration method. Following the Department of Health's Covid-19 protocol, physical distribution of survey forms was conducted to distribute the survey tool to different companies in different geographical areas. Letter-request with survey tool attached were physically distributed to the randomly selected companies identified as food, food packaging and, agricultural manufacturing companies through the human resource managers or operations managers. Once approved, the Human Resource Manager was given a free hand to identify which managers were given a chance to answer the survey. The number of responses from different companies ranges from 1 to 10 respondents per company.

Moreover, after the approval, the respondents were given ample time to answer the questions from two to three weeks in consideration of the length of the survey tool, the understanding of the questions as well as the process of accepting/ retrieving the survey tool from the human resource manager and the time to return the form especially during this time of Covid-19 pandemic where mobility was challenged. As soon as the SQs were returned, the results were tabulated. The total duration of the survey ran for five months, from January 2021 to May 2021.

In the qualitative strand, it commenced after the quantitative data collection and analysis. The quantitative analysis results were used to create the interview guide questions intended for the IDI and FGD. Questions using the direct and indirect effects of the exogenous variables on the SCP were also used and converted to qualitative questions. The interview guide was appended as well as the validation of the interview questions.

The qualitative collection of data began from the in-depth interview (IDI) from ten research participants to understand their standpoints, experiences, and opinions on the significant topics of supply chain performance. The IDI was conducted using face to face method based on the availability of the participant's schedule. The ten participants were identified from among the quantitative respondents to participate in an individual IDI. After identifying the prospective names of the participants, letters were sent to the prospective participants requesting their participation in the IDI and FGD. If the response was positive, the interview schedule was agreed upon based on the most convenient time of the participant.

As much as possible, for safety reasons of both the interviewee and the researcher, all interviews were conducted following health protocols. During the interview, the researcher took down notes and recorded the conversation using a voice recorder. The recorded interview was the basis for the transcription afterward. The interview started with asking the participant's name for introduction and recording of the interviewee's name. Then, a question to verify commonality in the understanding of the critical terms was asked. If there were differences in understating the key terms, the working definition was discussed with the participant. Then questions were asked on the participant's standpoints, opinions, and experiences using the validated qualitative questionnaire. After the interview, the researcher expressed his gratitude to the participants for attending the interview and his honesty in their responses.

The seven elements to be considered in qualitative data gathering, as emphasized by Oltmann (2016), where he believed in the IDI and FGD. These elements are time and financial cost, geographical distribution, the sensitivity of the topic, technology problem, interviewer safety, note-taking, and non-verbal language cues. As applied in this study, the time element is manageable and geographical distribution and note-taking since the study primarily was conducted in Davao City, Davao del Sur, and Davao del Norte, where the participants are located. The IDI was all conducted in the participants' offices except for two participants who requested it outside the office for confidentiality purposes. We interviewed in a restaurant near the participant and convenient for the participant. The duration of the study ran from January to May 2021.

Structural Equation Model on Supply Chain Performance of the Manufacturing Sector: An Explanatory Sequential Mixed Methods Study

The data Analysis of the quantitative strand was done using the structural equation model (SEM) which helped analyze the data further as a practical guide for multiple variables as claimed various literature like Karakaya-Ozyer and Aksu-Dunya (2018) and Frey (2018). It helped examine the cause-and-effect relationships in multivariate studies, identify linear causation and latent variables, and identify the interrelationships' latent variables. The path analysis helped develop a causal model that best-linked supply chain performance from the buyer-supplier relationship, logistics performance, integrated information system, and supply chain resilience. Then, the goodness of fit was evaluated as recommended in various literature (Karadag, 2012; Davcik, 2014; Hair et al., 2017). In this study, the following standard criteria were used:

Mean and Standard Deviation were utilized for the descriptive part of the data, followed by the use of SEM using the following standards:

Chi Square/DF (CMIN/DF)	< 0.05
P-value	> 0.05
Normative Fit Index (NFI)	> 0.95
Comparative Fit Index (CFI)	> 0.95
Goodness of Fit Index (GFI)	> 0.95
Tucker-Lewis Index (TLI)	> 0.95
Root Mean Square Error of Approximation (RMSEA)	< 0.05
Close Fit or P-close	> 0.05

Using the standards given above, chi-square was used to test the significance of the association of the two qualitative variables. Chi-square (X2), however, is not the final test of fit (West, Taylor, & Wu, 2012). The normative fit index (NFI) used the baseline and the target model's chi-squares and the minimum fit function value. The index used is .95 as an indicator of a good fit relative to the baseline model (Hooper, Coughlan, and Mullen, 2008). The comparative fit index (CFI) avoids underestimating fit often noted in small samples (Karadag, 2012). CFI measures improvement in the fit relatively. It considers the chi-squares of the baseline, target model, and the degrees of freedom. The value .95 will be interpreted as an acceptable fit. The goodness of fit index (GFI) will measure the relative amount of the variances and covariances in the empirical covariance matrix to help predict the model-implied covariance (Davcik, 2014). The GFI will assess the baseline's chi-squares and the model versus the corresponding minimum fit function value. The index will be used with .95 and above as an indicator of a good fit.

In addition, Tucker-Lewis Index (TLI) measures the relative reduction in misfit per degree of freedom (Cangur and Ercan, 2015). It is an incremental fit index. The index will be used with .95 and above as an indicator of a good fit. Finally, the root mean square error of approximation (RMSEA) measures the discrepancy due to the approximation per degree of freedom (Kline, 2011). It is a measure of the approximate fit of the model in the population and is concerned with the discrepancy due to approximation errors. It uses the minimum of the fit function, the degrees of freedom, and the sample size.

In the qualitative atrand, after the IDI data collection, the data were analyzed by generating the codes and themes. The coding process consisted of initial coding as the first step of coding, intermediate coding, and advanced coding immediately every after IDI per participant and transcription is done. The initial coding covered comparing incidents of different firms' practices and behaviors and their views and opinions regarding ensuring supply chain performance.

Describing the phenomenon's essence, data analysis in the qualitative section was subjected to appropriate thematic analysis by examining words, phrases, and processes, including those generated before the qualitative study. The analysis was done through reading text, marginal notes, and initial codes before themes were developed. Then statements were grouped and integrated into meaningful units or categories. Next, a textual description of what happened was documented in data analysis, followed by a structural description of how the phenomenon was experienced. Then, both textual and structural descriptions were integrated. Lastly, the narration of the essence of the experience was presented.

The Sequence, Emphasis, and Mixing Procedures was highlighted to ensure correct methodological approach implementation. The triangulation activity was done after the quantitative and qualitative data collection and analysis. Therefore, it can be as simple as comparing or contrasting the responses from both types of inquiry (Holstein, 2014).

Sequence. This study followed an explanatory sequential mixed methods design. The data collection and the quantitative research data were conducted before the qualitative research to answer questions 1, 2, and 3. Conversely, the qualitative phase was intended to answer the research questions 4 to 6. The key points, such as the high and highest means that arose in the quantitative study, were verified in the qualitative study. It is to know the participants' insights on the supply chain performance

of the manufacturing sector as well as the direct and indirect relationships of BSR, LP, and IIS on SCP. The outcome of the quantitative study determined the extent of the qualitative research.

Emphasis. Quantitative data was accorded more emphasis as the qualitative data just supported or corroborated the quantitative data findings.

Mixing Procedures. Mixing procedures were observed in the formulation of the purpose and research questions. Further, mixing the quantitative with qualitative phases was during the interpretation stage after analyzing the qualitative data. The specific research question served as a guide in the interpretation of results. Figure of Procedures

The flow of the explanatory sequential approach of mixed-method design is presented in Figure 8. It shows the two phases of the mixed-methods study, which begin from phase 1 – the quantitative and phase 2 – the qualitative research and finally the triangulation.

The quantitative data collection as a procedure began with random sampling from the population of manufacturing companies in the Davao Region. Then, the quantitative survey instrument was administered to the 332 respondents. A structural equation model was used in the quantitative data collection to arrive at the best fit model.

The result of the quantitative data analysis was used to generate a qualitative survey questionnaire. In addition, an interview protocol was established, and the in-depth interview guide was used to create information for the phenomenological research. The Figure of Procedure is provided in Figure 2 below.

Design. The methodological issues arose from the design, participant selection, time, and resources in this study. Mixed methods are relatively new to some, though it was used in various social research many years ago. Nevertheless, some issues are commonly raised with mixed methods, such as the value of one method over the other and the fewer samples being used to supplement quantitative data (Bazeley, 2004). In addition, the complexity of data analysis, mixing, and interpretation implied the study.

Participant's Selection. Participants were from the manufacturing industry who were selected via stratified random sampling technique in the quantitative phase. In the qualitative phase, snowball or chain, purposive sampling was done. It ensured that they were located randomly distant from each other.

Time. Locating participants and the actual survey was time-consuming. It required ample time to go to and from the place of study to find the individual participants. It also needed ample time for the actual survey until all the participants have returned the survey questionnaires. With this, it had five months duration to finish the entire study. Flow of procedure is presented on Fig. 2.

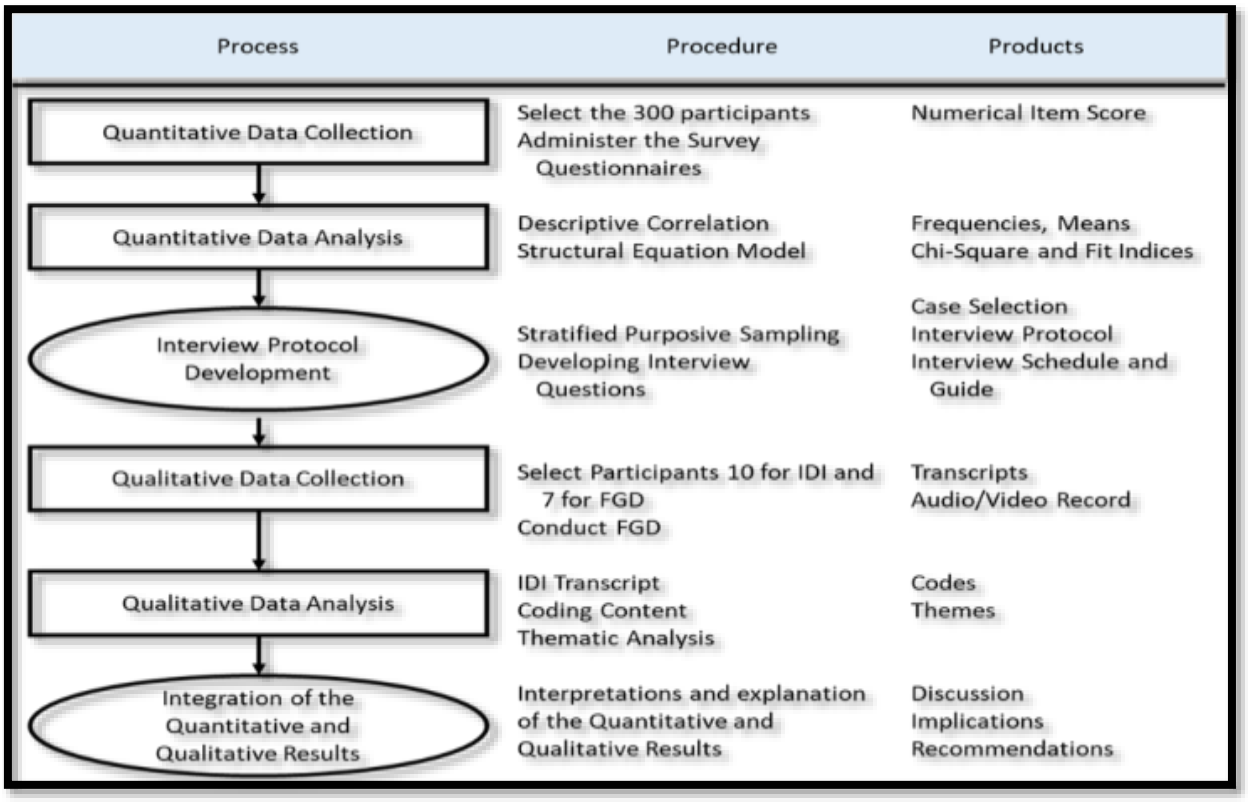

Fig. 2. Flow of Procedures

Trustworthiness of a study is the degree of confidence in data, interpretation, and methods as an indicator of quality research (Polit & Beck, 2014). Trustworthiness is the measure of qualitative research as to which extent the data and data analysis are believable and trustworthy. It can be established using the four dimensions: credibility, transferability, dependability, and conformability that are constructed following the analogous quantitative criteria of internal and external validity, reliability, and neutrality.

Credibility. Credibility in many studies is established through the rigor of techniques and methods. It is done by gathering high-quality data and careful analysis paying particular attention to validity, reliability, and triangulation. Moreover, the credibility of the researcher is another thing. The researcher's independence, training, experience, his/her track record in research, self-presentation also provides credibility to the study. Credibility can be established in every step of the research process following the scientific way of doing things. The method of establishing credibility in this study include, research participants in IDI and FGD were given a chance to check the transcript; and the University Research Ethics Committee and the dissertation adviser will always be informed of possible ethical issues for proper guidance in the study will give credibility to the collection of data and data analysis. Member check and peer debriefing were also conducted. Other ways to establish validity and credibility include pilot testing of the adapted questionnaires and data triangulation. The study of Belcher et al. (2017) emphasized the need to address credibility in a study.

Transferability. Transferability refers to how well the results fit outside the study situation (Marshall and Rossman, 2014; Noble and Smith, 2015). It aims to bring meaning to the different constructs and help inform others; it does not aspire to replicability. In qualitative research, transferability is the primary goal instead of the study's richness and depth of the data. Transferability, in this context, means that the findings of this study can be transferable when it has relevance when applied to other contexts, situations, or individuals

Dependability. It is the stability of the findings in the study that, through the research process, no deviation is noted. Moreover, the researcher accounts for any changing condition in the phenomenon of research, design, or methodology as appropriate (Houghton et al., 2013). Dependability is analogous to Reliability, which means showing consistency of findings under similar circumstances. The audit trail strategy will be adapted for purposes of ensuring dependability in the study. The study will show the steps taken throughout the study following quantitative and qualitative rigor.

Moreover, this study will follow the letter the procedures from the start until the completion. The documentation will ensure that no deviation will be recorded in the process. It will likewise report the process deviations or problems encountered.

Confirmability. Confirmability is the degree of verifiability of the research findings that other studies can confirm or corroborate (Korstjens and Moser, 2018). Confirmability in this study will be achieved by ensuring findings emerge from the data and not their predispositions. Moreover, a detailed account of the research processes will be kept and provided if needed to allow readers and users of this study to determine if the data analysis procedures were carried out appropriately. The data collection process, data analysis, and interpretation of the data will be recorded. Caution will be exercised to avoid potential bias and distortion. In the IDI and FGD, inputs from the researcher will be avoided to minimize interference.

Ethical Considerations. In this study, ethical considerations were observed, especially on specific terms herewith discussed. The observance of ethical consideration is in the light of risks to participants that may be experienced during the research process. Therefore, the researcher's role and obligation to ensure the well-being of the participants and respondents was safeguarded along the research process. It is highlighted explicitly by Scott (2013), saying ethical principles are adhered to like respect for the participants' confidentiality, or protection of participants from harm, informed consent, and voluntary participation is permanently attached to. In another study, ethical consideration is taken to another level by saying, researchers have to adhere to the rightness or wrongness of actions (World Medical Association, 2013). It is especially so when it is the people's lives that the researcher is studying (Scott-Lichter, 2012). Falsification and fabrication were not tolerated in the study.

The principles of ethics considered in this study include the value of beneficence and non-maleficence, fidelity and responsibility, integrity, justice, and respect for people's rights and dignity, following the recommendation of the American Psychological Association (2010). More importantly, this study was subjected to the University of Immaculate Conception Research Ethics Committee (UIC-REC) screening process. The UIC-REC is an accredited ethics board by the Department of Health of the Philippine government. The UIC-REC recommended ethical aspects including social value, informed consent, vulnerability issues, risk-benefit ratio, privacy and confidentiality of information, justice, transparency, qualification of the researchers, adequacy of facilities, and community involvement.

3. RESULTS AND DISCUSSION

This section presents the quantitative results of the study conducted through a survey questionnaire.

RQ 1 Level of BSR, WCM, LP, IIS, SCR, and SCP

Table 1 are the levels of the latent variables, including the observed variables. It could be noted that the means of the latent variables are all high; BSR (4.19), WCM (4.11), SCR (4.10), LP (4.04), IIS (3.84), and SCP (4.12). The standard deviation of the latent and observed variables ranged from .36 to .85, all less than 1.0, which is the typical standard deviation for a 5-point Likert scale, indicating consistency and homogeneity of the study responses.

The study showed BSR was rated high among the respondents, which indicates that BSR is generally manifested among the Davao Region manufacturing companies, emphasizing the need for buyer and supplier relationship continuity as an essential element. Some indicators of BSR, specifically relationship continuity (4.26) and communication (4.24), were rated very high.

World-Class Manufacturing was rated high, meaning the manufacturing companies of Davao Region in general often practice world-class manufacturing. Specifically, human resource management (4.2) is the indicator that obtained a very high rating. The other indicators were rated high, with cost reduction ranked the lowest among all the indicators of WCM (4.04) but still interpreted as high.

Table 1. ***Levels of Exogenous and Endogenous Variables***

Variables	SD	Mean	Descriptive Level
Buyer-Supplier Relationship	**0.48**	**4.19**	**High**
Commitment	0.50	4.12	High
Relationship Continuity	0.57	4.26	Very High
Communication	0.56	4.24	Very High
Supply Management	0.62	4.14	High
World-Class Manufacturing	**0.36**	**4.11**	**High**
Lean Manufacturing	0.40	4.13	High
Human Resource Management	0.39	4.20	Very High
Environmental Practices	0.47	4.09	High
Marketing Integration	0.49	4.09	High
Cost Reduction	0.51	4.04	High
Flexibility	0.55	4.09	High
Logistics Performance	**0.41**	**4.04**	**High**
Strategy and Improvement	0.59	3.08	Moderate
Work Organization	0.71	3.97	High
Capacity and Production Planning	0.34	4.04	High
Customer Interface	0.53	3.97	High
Production and Product Control	0.54	4.15	High
Supplier Interface	0.52	4.10	High
Integrated Information System	**0.66**	**3.84**	**High**
External ICT Capabilities	0.81	3.79	High
Internal ICT Capabilities	0.85	3.72	High
Information System	0.83	3.72	High
Firm Performance (Customers)	0.71	4.01	High
Firm Performance (Suppliers)	0.80	3.87	High
Supply Chain Resilience	**0.46**	**4.10**	**High**
Organizational Resilience	0.49	4.27	Very High
Sales Capabilities	0.63	4.02	High
Market Orientation	0.56	4.15	High
Retailers Individual Attitude	0.54	4.31	Very High
Supply Chain Performance	**0.44**	**4.12**	**High**
Supply Chain Flexibility Performance	0.45	4.18	High
Supply Chain Resources Performance	0.57	4.04	High
Supply Chain Output Performance	0.50	4.15	High

Logistics Performance results showed a high mean (4.04) which is interpreted as logistics performance generally, is often favorable. Specifically, the indicators of LP were likewise rated high, with one indicator rated moderate, which is strategy and improvement (3.08). Production and production control were rated highest among the indicators (4.15).

IIS showed a high (3.84) rating by the respondents of the manufacturing sector, which means IIS is generally practiced. Specifically, the indicator firm performance (customers) was rated high, which is the highest among IIS indicators. In contrast, the indicators Internal ICT and information system were rated lowest (3.72) but still interpreted as high.

The result of SCR in the study also showed a high (4.10) rating, which means SCR is often manifested in manufacturing organizations in Davao Region. Specifically, the indicators of SCR, which are the retailer's attitude (4.31), and organizational resilience (4.27), were rated very high.

Finally, the result of supply chain performance (4.12) was rated high. It means that, generally, SCP is often very satisfactory among the manufacturing companies in Davao Region. Specifically, the indicator of SCP, supply chain flexibility performance (4.18), was rated highest among all the indicators of SCP.

RQ 2 Relationships between the exogenous variables, and between the endogenous and the exogenous variables

Presented in Table 2 are the results of the relationships between the exogenous and the endogenous variables. From the table, all the exogenous variables are significantly correlated with the endogenous variables ranging from r=.407 to r=.60 significant at p<.05. Thus, the correlation between the exogenous and the endogenous variables is reflected and shows supply chain resilience has the highest correlation coefficient (r=.60, p<.05) when correlated with supply chain performance. World-class manufacturing (WCM) and buyer-seller relationship (BSR) got the highest correlation coefficient (r=.641, p<.05) closely followed by r=.593 @ p<.05, the correlation between BSR and supply chain resilience (SCR), implying that BSR may encompass both WCM and SCR.

Table 2. Correlation of Variables

	BSR	WCM	LP	IIS	SCR
BSR	1	.641*	.380*	.315*	.593*
WCM	.641*	1	.538*	.442*	.581*
LP	.380*	.538*	1	.567*	.273*
IIS	.315*	.442*	.567*	1	.500*
SCR	.593*	.581*	.273*	.500*	1
SCP	.538*	.517*	.464*	.477*	.60

Note: Significant @ p<0.05

Legend:

Exogenous Variables:

BSR - Buyer-Supplier Relationship

WCM - World Class Manufacturing

LP - Logistics Performance

IIS - Integrated Information System

SCR- Supply Chain Resilience

Endogenous Variable:

SCP- Supply Chain Performance

This analysis is substantiated by the data in Table 3 reflecting the collinearity of the variables, wherein WCM has the highest VIF followed by SCR. Although the variance inflation factors (VIF) for each variable have a value of below 5, where the value of VIF between 5-10 is considered high and problematic, WCM and SCR are relatively higher (2.299, 2.101 respectively) compared to the rest of the variables.

Table 3. Variance Inflation Factor on the Collinearity Of Variables

Model		Unstandardized Coefficients		t	Sig.	Collinearity Statistics	
		B	Std. Error			Tolerance	VIF
1	(Constant)	.748	.225	3.326	.001		
	BSR	.179	.051	3.493	.001	.503	1.987
	WCM	.015	.076	.203	.839	.435	2.299
	LP	.241	.058	4.181	.000	.532	1.878
	IIS	.065	.036	1.788	.075	.538	1.858
	SCR	.327	.051	6.368	.000	.476	2.101

RQ 3 Best Fit Model

At the onset, there were five hypothesized models generated presented on Fig. 3. Of the five models, hypothesized model five emerged as the best fit model. The result is presented on Fig. 4 and Table 4. The model was deemed best fit after passing several criteria set under the structural equation modeling standards provided earlier on the previous chapter's quantitative strand of data analysis.

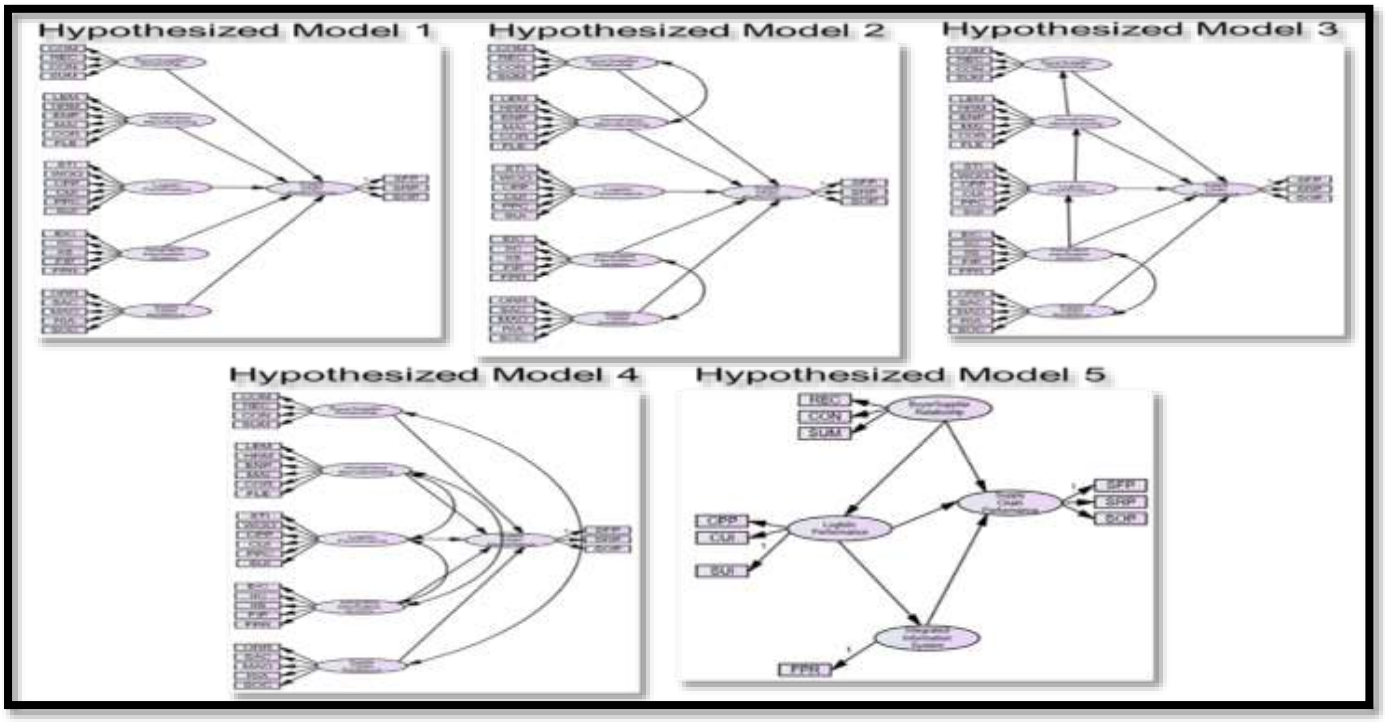

Fig. 3. Hypothesized Models

The best fit model possessed values that fit the criteria falling within the acceptable range of all the test indices. The chi-square/ degrees of freedom value must be above 0 but not higher than 2. The normed fit index, the goodness of fit index, Tucker-Lewis's index, and comparative index values must be greater than 0.95. The root mean square of error approximation value must be less than 0.05, and the P-close value must be greater than 0.05. As shown in Table 4, a comparative account of the obtained measures of the five models indicates that only model 5 has completely satisfied the criteria for SEM. Fig. 4 shows the Best Fit Model.

Table 4. Summary of Goodness of Fit Indices of the 5 Generated Models

Model	P-value (>0.05)	CMIN / DF (0<value<2)	GFI (>0.95)	CFI (>0.95)	NFI (>0.95)	TLI (>0.95)	RMSEA (<0.05)	P-close (>0.05)
1	.000	12.353	.566	.500	.481	.454	.185	.000
2	.000	11.754	.604	.529	.509	.483	.180	.000
3	.000	8.640	.574	.667	.641	.633	.152	.000
4	.000	10.695	.585	.577	.555	.534	.171	.000
5	.325	1.114	.987	.999	.988	.997	.019	.934

Legend:

CMIN/DF	*Chi Square/Degrees of Freedom*
NFI	*Normed Fit Index*
GFI	*Goodness of Fit Index*
TLI	*Tucker-Lewis Index*
RMSEA	*Root Mean Square of Error Approximation*
CFI	Comparative *Fit Index*

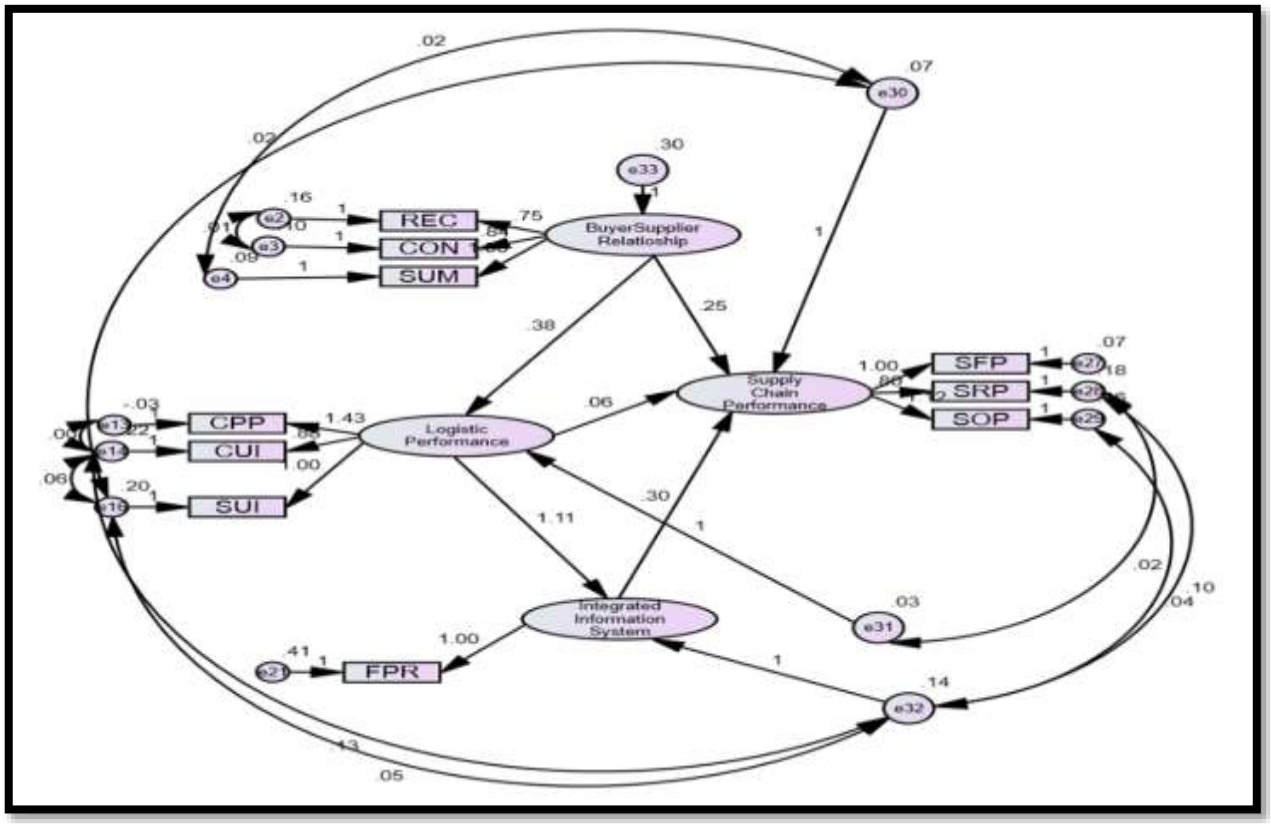

Fig. 4. Best Fit Model

Legend:

SUM – Supply Management
CON - Communication
REC – Relationship Continuity
FPR - Firm Performance (Suppliers)
CPP – Capacity and Production Planning
CUI – Customer Interface
SUI – Supplier Interface
SRP - Supply Chain Resources Performance
SFP – Supply Chain Flexibility Performance
SOP – Supply Chain Output Performance

The best fit model projects BSR, LP, and IIS as either direct or indirect significant predictors of supply chain performance of the manufacturing sector in the Davao Region. However, the results revealed that not all indicators are significant predictors of their respective variables. As shown in Figure 9, the best fit model indicates that in BSR, only relationship continuity, communication,

and supply management are retained as indicators. In LP, only capacity and production planning, customer interface, and supplier interface are present. In IIS, only firm performance (supplier) is left as the lone indicator.

Table 5 provides the estimates of the variable regression weights in the best-fit model and table 6 the tabulation of the direct and indirect effects of the exogenous variables, respectively. It shows the computed weights of a variable towards another variable and the variable towards its indicators. In the context of the weight of the influence of the different variables on supply chain performance, IIS and BSR have the significant ($p<0.05$) direct influence (0.303 and 0.252 respectively) on supply chain performance while the influence of LP is 0.062 and not significant ($p>0.05$). The direct, indirect, and total effect of the exogenous variables are presented in Table 5.1

LP was found to have no significant influence on SCP, although LP is an important element in the model which influences IIS significantly ($p<0.05$) with an estimated weight of 1.111. It means that IIS with LP will have more influence and impact on SCP. Moreover, the performance of Logistics in terms of CPP, CUI, and SUI will affect the firm's supply chain performance. Thus, the effect of LP on SCP is an indirect effect through IIS. LP also is an important element in the model in the context of BSR. BSR influences LP significantly ($p<0.05$) estimated at .380. It means that BSR will have more influence on SCP through LP. The three remaining indicators of BSR: REC, CON, and SUM, have an additional indirect influence on SCP thru LP over and above their direct effects on SCP.

The estimates of the regression weight is presented on table 5 and the direct and indirect effects of the independent variables to the dependent variable is presented on table 6.

Table 5. Estimates of the regression weght

			Estimate	S.E.	Beta	C.R.	P-value
LP	<---	BSR	.380	.049	.778	7.708	***
IIS	<---	LP	1.111	.143	.621	7.753	***
SCP	<---	LP	.062	.121	.045	.516	.606
SCP	<---	IIS	.303	.063	.396	4.828	***
SCP	<---	BSR	.252	.065	.376	3.874	***
SUM	<---	BSR	1.000		.873		
CON	<---	BSR	.844	.045	.828	18.763	***
REC	<---	BSR	.746	.051	.711	14.719	***
SUI	<---	LP	1.000		.515		
CUI	<---	LP	.877	.135	.441	6.493	***
CPP	<---	LP	1.429	.159	1.124	9.012	***
FPR	<---	IIS	1.000		.597		
SFP	<---	SCP	1.000		.800		
SRP	<---	SCP	.804	.088	.509	9.144	***
SOP	<---	SCP	1.115	.071	.804	15.801	***

Table 6. Direct and Indirect Effects of the Independent Variables to the Dependent Variable

Variables	Direct Effect	Indirect Effect	Total Effect
Buyer-Supplier Relationship	.252	.152	.404
Logistics Performance	.062	.337	.399
Integrated Information System	.303	-	.303

RQ 4 Standpoints on the Level of Exogenous and Endogenous variables

Table 7 is a presentation of the demographic profiles of the research participants. The participants' responses in the IDI and FGD were transcribed, open coded, and analyzed to create essential themes as the standpoints of the participants on the exogenous

and endogenous variables. The responses were treated as the participant's insights and experiences as they work with the different manufacturing companies in the region.

Table 7. Demographic Profile of Participants

CODE	PSUEDONYM	AGE	POSITION	DEPARTMENT	SUB INDUSTRY
IDI - 1	Honey	43	Manager	Plant Finance	Beverage Manufacturing
IDI - 2	Smiley	36	Supervisor	Finance	Food Manufacturing
IDI - 3	Haley	49	Manager	Operations	Chocolate Manufacturing
IDI - 4	Turtoise	30	Supervisor	Operations	Agri-Manufacturing
IDI - 5	Lin Lin	36	Supervisor	Logistics	Cakes, Pastries and Bread
IDI - 6	Happy	55	Manager	Production	Feeds Manufacturing
IDI - 7	Navy	52	Owner/Mgr	Production	Agri-Manufacturing
IDI - 8	Nicey	51	Manager	Production	Agri-Manufacturing
IDI - 9	Cecil	49	Manager	Logistics	Agri-Manufacturing
IDI - 10	Vine	38	Manager	Production	Plastics Manufacturing
FGD - 11	Mikay	31	Supervisor	Production	Cakes, Pastries and Bread
FGD - 12	Sarge	45	Chairman	BOD	Chocolate Manufacturing
FGD - 13	Loila	56	Manager	Finance	Agri-Manufacturing
FGD - 14	Hesus	24	Manager	Operations	Agri-Manufacturing
FGD - 15	Anastacio	40	Manager	Logistics	Beverage Manufacturing
FGD - 16	Jean	37	Manager	Operations	Agri-Manufacturing
FGD - 17	Julia	35	Manager	HRA	Plastics Manufacturing

The themes that surfaced in the analysis of the qualitative results presented in Table 8 include confirming the high rating of BSR and WCM. Furthermore, other themes include confirming the high rating of SCR and SCP. Moreover, other themes include the dichotomy of the LP and IIS ratings wherein high ratings of LP and IIS were both confirmed by some, and some others negated the high rating of LP.

Table 8. Standpoints of the Participants on the Quantitative Results Regarding the Level of the Exogenous and Endogenous Variables

Level of: (1)	Essential Theme (2)	Typical Reasons for Column 2 (3)
Buyer-Supplier Relationship (BSR) (*Exogenous Variable 1*)	**Confirmation of High Rating of BSR**	**Company:**
		Having long term relationship with farmers as the supplier.
		Relying heavily on suppliers for operations.
		Recognizing the beneficial consequence of maintaining good communication with suppliers.
		Developing mutual and beneficial agreement with the supplier
		Realizing the value of supplier as the source of raw materials for the company
		Building tangible and intangible investments with supplier
World Class Manufacturing (WCM) (*Exogenous Variable 2*)	**Confirmation of High Rating of WCM**	Investing in quality types of machinery and equipment
		Exerting best effort to become a world-class manufacturing
		Ensuring world-class quality for the products being produced
		Observing global standards in manufacturing operations

		Making customer satisfaction on products produced as the prime consideration locally and internationally
Logistics Performance (LP)	**Confirmation of High Rating Of LP**	Giving importance to LP for timely delivery of products
		Making logistics a necessary tool in every facet of the business
		Practicing proper storage of products to ensure the quality of products being delivered.
(*Exogenous Variable* 3)		Practicing proper warehousing for production needs and product control
	Negation of High Rating of LP	Still in the process of developing the necessary logistics for the products.
		Considering LP not important concern since customers take charge in picking up the products
		Giving less importance to storage since products are per order and delivered immediately once get done.
Integrated Information System (IIS) (*Exogenous Variable* 4)	**Confirmation of High Rating of IIS**	Carrying out IIS is very important factor in facilitating business decisions
		Doing IIS as an elemental part of business operations from paper works to field operations
		Making continuous communication with customers and suppliers as an essential facet of IIS
		Seeing to it that sales target within reach with the IIS in place
		Making IIS an essential business factor for critical information sharing both internal and external relations.
	Negation of High Rating of IIS	Realizing that IIS needs improvement, especially if the location has a weak signal.
		Knowing that there is no need for the establishment of IIS, having customers personally picking up products
Supply Chain Resilience (SCR) (*Exogenous Variable* 5)	**Confirmation of High Rating Of SCR**	Being able to adjust to changes within the company
		Remaining in the market despite the pandemic phenomenon
		Being able to cope with the challenges of environmental issues
		Identifying company risks for advanced planning
		Implementing risks measures to lighten if not eliminate, the intense impact
Supply Chain Performance (SCP) (*Endogenous Variable*)	**Confirmation of High Rating Of SCP**	Applying SCP as a fundamental tool for the sustainability of business operations
		Applying SCP as a critical element for the attainment of sales targets.
		Actualizing SCP as the totality of business performance from people to equipment to end products.
		Making SCP as the nucleus of output performance from customers to suppliers

In the qualitative study, the high rating of BSR was confirmed. A long-term relationship with buyers is established, and Haley confirmed that their company relies on farmers as a practice. They need good communication with them as the company's primary suppliers:

Kami ug ang among supplier *kinahanglan magkauyon sa matag-usa […] kanunay kaming nagsalig sa kanila, ug kinahanglan namo ang maayong komunikasyon.* (IDI_S105) We and the supplier have to agree with each other. We always rely on farmers, and we need good communication with our suppliers.The excellent relationship with suppliers was also stressed in the study as beneficial to buyers and suppliers, including good communication with suppliers. It was confirmed by Mikay on her company experience saying:

Sa among kompanya, himuon namo una ang accreditation *sa* supplier*, pagkahuman pangitaon namo ang kinahanglanon nga mga dokumento. Unya, among himuon ang* SLA *o* Service Level Agreement *nga nagpakita sa mga detalye sa kontrata aron maestablisar ang maayong kumunikasyon ug relasyon ug magkasinabtanay kami. Kung unsa man ang naa sa* SLA *kinahanglan sundon, ug sa ingon magsunud sa kasabutan kami ug ang among mga* supplier *ug maayo ang among relasyon.*
(IDI_S113)

In our company, we do supplier accreditation. We first look for supplier's requirements, and as soon as they are complete, we establish SLA or service level agreement. The contract provides details to establish clear understanding on the expectations, communication, and good relations. Whatever is provision in the SLA, it will be followed, to the letter and then later build relationship.

Moreover, the participants also declared that investing in BSR, both tangible and intangible are beneficial to both parties. Tangible support means the stable support of suppliers for raw materials to ensure continued production, and the intangible support means supplier relationship and related to it, Cecil said:

It is how to establish long-term relationship with the us and the supplier *sa kompanya aron ma* stabilize *ang* raw material source *ug masiguro ang* continuity *sa* production. Good relationships with suppliers help build sustainability of raw materials making our production sustainable.
(IDI_S9)

It is how to establish long-term relationship with us and the supplier for the company to stabilize raw materials source and ensure continuity of production. Good relationships with suppliers help build sustainability of raw materials making production sustainable.

Most participants also confirmed the high rating of the WCM. It indicates the practices of manufacturing firms in having quality machinery producing quality products with global standards. Although not yet world-class, Sarge is already practicing WCM, specifically investing in quality machinery and equipment. He declared that:

Mahinungdanon ang WCM*. […]* We are working today *nga mahimong* world class *sama sa among kagamitan nga gikan sa* Belgium *aron maka-kompetensya ang among pagproseso sa mga tsokolate nga mahimong* world-class*.* WCM *allows us nga maka-*distribute *puhon sa among mga produkto sa lainlaing mga bahin sa kalibutan.*
(FGD_S131)

WCM is important. […] You and your products will never be known in the market if you are not world-class. Today, we are working on it like our equipment is from Belgium to compete for our processing of chocolates to be world-class. WCM allows us to distribute our products also in different parts of the world.

This standpoint of Sarge on WCM is shared by Anastacio, based on his experiences with his company in exerting to be world-class by producing quality beverage products satisfying the customers in saying:

Sa WCM *ang among mga proseso nagpabilin nga world class. Busa ang among mga produkto usab* world-class*. Ang among mga produkto gidawat sa lokal ug ingon man sa internasyonal. Gisiguro sa* WCM *nga ang among mga proseso* at par with the world*, ug ang among mga produkto usab,* we reduced our wastes *apan nagpabilin ang kalidad nga maka satisfy sa customer.*
(FGD_S134)

WCM keeps our processes world-class. Thus, our products too are world-class. Our products are accepted locally as well as internationally. World-class manufacturing is making sure our processes are at par with the world, our products too. We reduced wastes and the cost, but we maintain quality satisfying the customers.

Moreover, the high rating of Logistics Performance (LP) was also confirmed, implying the importance of timely delivery of products and effective production and product control. The need for effective LP was emphasized by Smiley producing fruit-based and all-natural, agri-based juices, which is classified as a small company when she said:

Mahinungdanon ang Logistics *labi na sa among mga deliveries. […] Kung layo ang among hatdan sa produkto, magsalig me nga epektibo and among* delivery team*. Ang mga trabahante sa* Logistics *kinahanglan mga* trustworthy*. Ang among mga produkto mga* frozen products*, kinahanglan namo ma maintain ang* cold chain *sa pagbiyahe padulong sa among mga kostumer. Ang among mga produkto wala'y mga preservatives so, kinahanglan nga magbinantayon sa* temperature requirement*. Sa, ang mga taga* Logistics *kinahanglan nga matinguhaon nga masiguro kini.*
(IDI_S138)

Logistics Performance is essential, especially in our deliveries. When our deliveries are far, and we rely on the effectiveness of our delivery team. Logistics personnel must be trustworthy. In terms of its characterization which is frozen, our products need

continuity of the cold chain as it travels towards our customers. Our products also are all-natural and without preservatives needing careful attention to temperature requirements. Thus, the Logistics crew should be keen on ensuring this.

In like manner, the high rating of LP was confirmed by small companies and clarified by a participant from a large corporation. LP is a necessary tool in every facet of the business when Mikay pointed out the need for an effective LP in cake manufacturing. Mikay said:

LP is very important to us. *Kinahanglan nga ang* performance *sa* Logistics *maayo.* Given our product is of quality*, ug ang* shelf life *mubu ra kaayo, importante nga ang* delivery on time *ug paspas. […]* LP *also nagpasabot nga* Just in Time*, ug nindot nga* performance *sa pag maintain sa* inventory*. If our* inventory is low*, ug ang mga serbisyo sa* logistics delayed*, maapektuhan ang among* performance*.*

(FGD_S147)

LP is very important to us. It is a must that the performance of Logistics is good. Given our product is of quality, and the shelf life is very short, delivery is critical to be on time and fast […] Moreover, LP also allows us a Just in Time system, which includes the performance on inventory. If our list is very low and the service of logistics has many delays, then performance is affected.

The high rating of Logistics Performance (LP) was confirmed by some companies and negated by others. Companies that are characterized by non-integration of the distribution process were noted to have negated LP. The integration of logistics in many companies globally is prevalent because many believed that disintegrating logistics would bring more economic value. However, disintegration in logistics is illustrated in customers picking up orders from the manufacturing site. In this study, the researcher found the exact reason for the negation of LP during the interview with IDI participant Navy whose company relies on its business partners (B2B), and He said:

Ang LP *alang kanako dili kaayo mahinungdanon tungod kay ang among mga produkto* made-to-order*. Kung maghimo mi, ihatud dayon dayon or pick-upon dayon gawas kung sa mga special ng okasyon ug panahon. Ana mga mga okasyon, mag-abang kami og* cold-storage facility *aron I* store *ang among mga produkto. Ang among* delivery *dili sab mahinungdanon tungod kay ang among mga kostumer mga tindahan sa bulak ug kuhaon nila diri sa among* production site *kung mag*-order *sila. Adunay usab kami mga kostumer nga established na kung asa ihatud ang among mga produkto kanunay sa adlaw-adlaw.*

(IDI_S143)

LP for us is not so important because our products are made to order. When we produce, we immediately deliver unless during occasions and seasons. We rent cold storage facilities to store our products. Our delivery also is not so important because our customers are flower shops, and they pick up if they order. We also have existing delivery customers where our products are regularly delivered daily.

It is true to another disintegrated downstream operation company that negated LP. Turtoise and her company rely on their customers who operate on a Business to Business (B2B) model; on the importance of LP, Turtoise said:

Ang LP *dili kaayo mahinungdanon sa amo tungod kay ang among mga kustomer mobisita sa among production area aron kuhaon and ila* order*. Mao nga wala'y importansya kayo sa among* operation *ang* LP*.*

(IDI_S140)

LP is not so important because our customers come to our business to pick up what they want to buy. So regardless of LP, our customers visit us.

Furthermore, the high rating of the Integrated information system is both confirmed and negated by manufacturing companies. The IDI and FGD participants who confirmed affirm the importance of IIS to partner with any part of the structure in the Supply Chain to maximize performance. It confirmed that putting an information system as a fundamental part of the business brings excellence to the supply chain. It helps enhance communication between firms, suppliers, and clients and allows them to interact easier, faster, and more precisely. The result confirms that IIS improves firm performance, establishes a robust information system for the firm's success, and helps improve the inventory system, indicating that the benefit of IIS to the manufacturing sector is extensive. It is confirmed by Anastacio in the IDI on his experiences with his company when he said:

Information system is a competitive advantage to the company. Information is kept *kay parti ni siya sa* knowledge *sa usa ka* organization*. Kung mas taas ang* level of information*, mas maayo kini alang sa amo pag communikar sa among mga customer ug supplier. Ang mga* technology *ug mga* innovations *sa among mga produkto naa sa taas nga* level of knowledge*.* We make use of these *nga mga* information *para mapa* improve *ang among mga produkto para ma* meet *ang* customer requirement*.*

(FGD_S66)

Information system is a competitive advantage to the company. Information is kept as this forms part of the body of knowledge of the organization. The higher the level of the information, the better it would be for us to communicate these to our customers

and suppliers. For example, technologies and innovations of our products are some high-level information. We make use of these kinds of information to further improve our products and therefore meet customer's requirement.

This standpoint of Anastacio is also shared by many participants of the IDI and FGD; in an IDI, for example, Cecil said:

Ang IIS motabang sa paghimo og mga mayo nga desisyon. Mo giya kini sa tanan nga mga panahon.

(IDI_S162)

IIS will help us make decisions soundly and based on information. We will be guided at all times.

IIS also helped manufacturing improve operational efficiencies when IIS mediates to ensure the different structures are collaborating. To illustrate the role of IIS, Nicey mentioned the role of IIS in helping sales operations and achieve the target. She said:

Ang IIS *mo* connect *sa among kompanya sa among mga* customer *para sa ilang mga* sales order *aron ma* achieve *namo ang among* sales targets*.*

(IDI_S59)

IIS is how we can connect with our customers for sales orders and achieve sales targets.

However, the high level of IIS, though found by many to be a critical SCP element, was also negated by some. The negation is due to specific reasons including the need for IIS improvement in the company and the number of customers. They pic-up their orders from the manufacturing plant of Navy during an FGD and said:

Dili namo kaayo gikinahanglan ang IIS *tungod kay adunay kami* existing *kostumers diin ang among mga produkto kanunay nga gihatud. Kung unsa man ang gidaghanon, kanunay nila nga madawat 100%. Dili kinahanglan sa amon ang* information system *nga buhaton or I establisar.*

(IDI_S160)

We do not need this because we have existing customers where our products are regularly delivered. Therefore, whatever the volume, they will always accept. There is no need thus for an information system to be established.

The negation of IIS by some companies as a not-so-important element of the SCP happens in specific conditions like high demand with limited supply. On the other hand, the market condition described as a positive scarcity effect occurs when consumers/customers depend on the product's suitability for conspicuous consumption.

The high level of Supply Chain Resilience is also confirmed by the study participants, where everyone concurred with the need for Supply Chain Resilience (SCR). SCR is needed for companies to adapt to changing market conditions, adverse environmental conditions like the pandemic of the covid-19, and economic challenges. According to participants, the primary reasons for a high level of SCR needed vary from firm to firm. Some said to identify risks and hazards and prepare for mitigations before something challenging happens to the company. Some others said to sustain the business, and still, others said to be prepared for possible financial hardships and survive. It is agreed by Lin Lin when she said:

Yes, I agree. SCR is important *aron Kung adunay moabut nga mga* challenges*, mapadayon gihapon ang negosyo. Sama sa* Covid-19 Pandemic*, nakalahutay gyud mi sa negosyo tungod siguro kay gi sigurado namo ang among* supply *sa mga* raw materials *nga magpadayon gihapon.*

(IDI_S175)

Yes, I agree. SCR is essential so that whatever challenges may come, we will be able to sustain the business. Like in the Pandemic, we were still able to sustain the company, maybe because we are sure of our suppliers for raw materials, and it is still continuous.

The high level of SCR was also confirmed by Honey when she said:

I agree. It is needed by the company kay you have to be always aware of the many risk factors that surrounds you *labi na kadtong directly maka affect sa* business*… Kini aron masiguro nga dili maapektuhan ang* operations *kung mahitabo ang risk ug mapadayon gihapon ang* operation. Some resilience measures implemented include crisis committee *nga gi himo dugay na.*

(IDI_S171)

I agree that the company needs it because you must always be aware of the many risk factors surrounding you, especially those that directly affect your business…It is to ensure that your operations will not be affected if the risk will occur and continuity of operations is assured. Some resilience measures implemented include a crisis committee formed several years ago.

The confirmation of a high level of SCR confirms the role of SCR as the element that ensures resilience necessary to combat business disruptions, adapt to adversities, and ensure the availability of resources in response to challenges. Moreover, it is also to ensure the company's capability to face turbulence, survive the challenges, move on and adapt to the changing environment, and grow despite the barriers and disruptions.

Finally, the high level of SCP was also confirmed. It means that SCP is a fundamental element of the business leading to sustainability of business operations, a critical element for attaining sales target. In totality, SCP ensures business performance from end-to-end of the Supply Chain. The statements were confirmed in the statement of Honey when she said:

I agree. This is important to the company as this is where all processes interplay ang input ug output processes. *Kinahanglan,* we need to ensure *nga ang atong mga proseso* are effective *ug* efficient so that we will be able to meet company targets like sales target, profit, minimize waste and optimize cost.

(IDI_S188)

I agree. This is important to the company as all processes interplay, from input processes to output processes. So, we need to ensure that the processes are effective and efficient so that we will be able to meet company targets like sales targets, profit, minimize waste and optimize costs.

This standpoint is also shared with conviction by Happy by saying:

Kay, we need to make sure *nga ang* business is sustainable. We need to monitor sales and check profitability always.

(IDI_S192)

Because we need to make sure the business is sustainable. We need to monitor sales and check profitability always.

Explicitly in this study, SCP is high. The confirmation of the high level of SCP is also a confirmation of the role of Supply Chain Performance in helping the firms to establish competitive advantage, in setting goals, objectives, and strategies, in evaluating the performance of the manufacturing firms, and also in determining the firms' future strategic direction, and on establishing flexibility capabilities in Supply Chain. Moreover, the qualitative study results confirm that when the level of SCP is high, the supply chain helps resolve the three main issues highlighted. Thus, supply chain structure is working, SC structure possesses resilience, and supply chain structures collaborate. Standpoints of the participants on the Best Fit Model

Table 8 presents the essential themes on the standpoints of the participants on the best fit model on Supply Chain Performance, and nine themes were generated. These themes include the Confirmation of IIS as the Best Predictor. IIS in the study is seen to be the best predictor of SCP.

It is confirmed that information system is essential in the manufacturing operations when Linlin said:

We need information aron maseguro nga hapsay ang operations […] this is important to us tungod kay daghan mi ug mga kostumers, suppliers ug among mga produkto nga usahay mag bag-o sa formulation sama sa mga cake ug breads. Usahay naa mi mga bag-ong produkto nga gihimo ug busa, gikinahanglan ang bag-ong information. Kinahanglan ang information para ma share ang correct nga information.

(IDI_S56)

We need information to make sure the operation is smooth. It is essential because we have many customers, suppliers, and products that sometimes change in a formulation like cakes and bread. Sometimes new products are created, and therefore, further information is needed. Therefore, information is required to be shared but correct information.

This is also confirmed by Turtoise when she said:

Ang Information makatabang sa kompanya nga makahimo ug mga desisyon labi na ang information nga gikan sa mga kostumer kung unsang mga produkto o serbisyo ang gusto nila. Busa, nakahatag kami Kung unsa ang kinahanglan sa mga kostumer.

(IDI_S55)

Information will help the company make decisions, especially information from the customers on their products or services. Therefore, we can deliver what the customers need.

Specifically, that quantitative section of the study will answer the research question 'what is the level of buyer-supplier relationship, world-class manufacturing, logistics performance, integration of information system, supply chain resilience, exogenous variables, and the firm's supply chain performance as an endogenous variable? In addition, it will also answer the question 'are there significant relationships between the exogenous variables, and between the endogenous and the exogenous variables?' The study will also answer the question 'what is the best fit model for the supply chain performance of the manufacturing companies?'

On the qualitative section of the study, it will address the question 'what are the standpoints of the research participants on the level of exogenous and endogenous variables?' and the question 'what are the standpoints of the participants on the best fit model?'

The study then will integrate the results of the quantitative and qualitative studies, and will answer the question 'how do the qualitative results explain the quantitative results of the study?'

The pilot study result is presented in Table 1. It was conducted among the 30 respondents of, restaurant owners, managers, and business education professionals in Davao City.

Table 1. Reliability Test

Variable Type	Variable	Cronbach's α	
		Pilot Test	Post Test
Exogenous	Strategic Motive	.945	.899
Exogenous	Business Efficiencies	.951	.895
Exogenous	Firm Economies	.874	.903
Exogenous	Market Factors	.934	.897
Endogenous	Vertical Integration Adoption	.910	.901

The use of a participatory pilot survey was recommended in the study of Gosselin et al. (2019), and this is done to test the reliability of the questionnaire. The result showed that the variables have acceptable Cronbach's coefficient levels and confirmed the endogenous and exogenous variables' relative degree of internal consistency. In this study, a pilot test was conducted initially, and a retest was done after the final results. The Cronbach's alpha of the two tests was compared, indicating similar acceptability.

It can be noted that a reliability coefficient of .70 or higher is acceptable in many research situations (Tavakol and Dennick, 2011). Cronbach's alpha was historically generated to assess the reliability of an instrument. Ghazali (2016) identified several types of reliability tests, including test-retest. In this study, the pilot test and the post-test showed that the values of Chronbach's alpha of the endogenous and exogenous variables were all acceptable, indicating the data's reliability.

The gender and age profiles of the respondents are generally within the age range of 35-44 (38.64%) and 45-54 (21.59%). The managers and owners of the businesses indicated that they are the young generation managing the food businesses. In terms of gender, the majority, or 64%, are male, while 36% are female.

The profile of the respondents in terms of their geographical location shows a realistic reflection of the conglomeration of the population of restaurants in Davao City. The restaurant's population includes 58% in district 1, the downtown area, 28% in district 2 or northeast Davao City District, and 14% in district 3, the Calinan-Toril District found in the northwest Davao City. The high number of respondents from district 1 is due to the large population of restaurants in the area; in contrast, district 3 has the least respondents due to the smaller number of restaurants.

The restaurant's profile is presented in Fig. 1 on a descriptive level. The data shows that most restaurants do not own their raw materials; they just procure them from external suppliers. The data showed that only ten restaurants at least owned a vegetable farm, piggery, chicken, or fish farm intended for restaurant production ten years ago. Over the years, it has not significantly changed, and most restaurants today still procure raw materials from external sources.

Fig. 1. Restaurant Business Structure

What is notable among restaurant structures is that they have procurement teams, procurement officers or buyers internally, and internal company employees over the years. This finding is factual from 10 years ago until today, and there has been an improvement over the years from 172 to 192 restaurants. In addition, restaurants too own their kitchen and have regular employees as kitchen crew as well as most restaurants own their dining area/buildings and employ a regular dining crew. This finding has been factual for kitchen and dining areas ten years ago, with some improvements over time.

The data provides a glimpse of the significant increase in online websites, online home pages, and social media. Some 10 and 5 years ago, most restaurants did not maintain an online presence; however, today, most if not all restaurants have websites or social media presence to support their businesses.

RQ1 Levels of Exogenous Variables

Table 2 presents the levels of latent and observed variables. The mean scores of the latent variables are Strategic Motive (3.744), Business Efficiencies (3.812), and Firm Economies (3.824) were rated high, while Market Factors (4.226) were rated very high. The high rating of SMOT means that the strategic motive of restaurants is often observed. In addition, the high rating of BEFF manifests that the business efficiencies of the restaurants are high. Moreover, the high rating of FECO means that the firm economies are high, while the very high rating of MFAC means market factors affect the business very strongly.

Table 2. Levels of Exogenous Variables

Variables	Mean	SD	Descriptive Level
Strategic Motive	**3.744**	**0.834**	**High**
Strategic Planning (SPL)	3.742	0.940	High
Business Goals (BGL)	3.545	0.978	High
Business Growth Sustainability (BGS)	3.943	0.744	High
Business Efficiencies	**3.812**	**0.0859**	**High**
Financial Measures (FLM)	3.867	1.097	High
Non-Financial Measures (NFM)	3.686	0.973	High
Productivity Measures (PDM)	3.883	0.896	High
Firm Economies	**3.824**	**0.910**	**High**
Human Resource Economies (HRE)	3.777	1.106	High
Transaction Costs (TNC)	3.760	1.039	High
Asset Specificity (ASP)	3.936	0.955	High
Market Factors	**4.226**	**1.046**	**Very High**
Market Coverage (MCV)	4.223	1.113	Very High
Industry Competition (ICO)	4.223	1.157	Very High
Industry Entry (INE)	4.231	1.037	Very High

The results presented mean that restaurants in Davao City, despite the Covid-19 Pandemic, were performing well during the time of the conduct of the study. According to Hakimpoor (2014), Samad et al. (2015), Bryson and George (2018), and Gomera et al. (2018), strategic management and strategic motives influence organizational performance, profitability, effectivity, and productivity. All the indicators of SMOT were rated high, such as Strategic Planning (SPL), Business Goals (BGL), and Business Growth Sustainability (BGS). BGS was rated the highest, indicating that the strategic motive of the company is always geared toward business growth and sustainability. The finding of this study supports Fernando et al. (2019), pointing out that sustainable business is combining business goals with the social environment to ensure business continuity, maximization of opportunities, and organizational flexibility.

The exogenous variable BEFF was also rated high, which means the business efficiencies of the restaurants are high. This variable is measured according to the indicators of financial measures (FLM), non-financial measures (NFM), and productivity measures (PDM). All indicators were rated high, with productivity measures rated highest among the three indicators. In many studies, such as those of Zhang (2013), Hamdaoui and Bouayad (2019), and Patil (2020), among many others, the reason for VI is cost-related.

Operationally, the probable reason why productivity measures were rated highest among all indicators of the exogenous variable BEFF is that this is the first experience of the business before arriving at an excellent bottom line. Productivity in terms of good inventory management, excellent delivery services, and superb restaurant services are felt by the customers first, thus allowing them to repeat business. When productivity is high, customer service is good, repeat business is highly likely, and therefore, a high level of profitability is expected in the end. Productivity measures in operations come first before financial measures. Panayides et al. (2016) highlighted that companies vertically integrate because of operating performances, including inventory turnover. In a hospital industry study on VI, the author Lopes et al. (2017) pointed out that the reason for vertical integration has something to do with hospital performance. VI will allow improvement in the communication system, inpatient care services, and even during the after-care services. The study even concluded that because of VI, re-admission of patients reduced significantly. However, the study of Sha et al. (2020) disagrees with this direction of VI. However, treading the authors' logic, the primary reason for the negation and favoring outsourcing over VI has something to do with the poor performance of the local market to provide quality materials. Thus, the study may not necessarily negate vertical integration but the inefficiencies

found in the local market. Moreover, if the local market effectively supplies the market with quality materials, maybe VI is applicable.

The firm economies were rated high, which means that the firm economies of the restaurants are high. Its indicators, such as human resource economics (HRE), transaction costs (TNC), and asset specificity (ASP), were likewise rated high. ASP was rated the highest, indicating that the respondents recognized the importance of investing in durable assets used for the businesses. Fig. 1 earlier displays the growth of restaurants' assets over the years in the kitchen, dining, and, most significantly, investment in online systems. In general, firm economies are essential to the business; when a business is doing good in terms of human resources, it brings economic performance to the company. This result is highlighted by the studies of Jiang et al. (2012), Diamantidis and Chatzoglou (2019), and Boon et al. (2018). In a related fashion, Van Dooren (2015), Ployhart and Hale (2014), and Siciliano (2015), among others, indicated that high turnover of employees negatively affects performance, disrupts social ties, and negatively affects trust.

Firm economies are also essential for providing economic incentives to businesses. Luck (2019) pointed out that value-added increases as the business move down the supply chain towards final production, and it is more favorable when companies are vertically integrated. The result of this study supports the study of Luck (2019). In parallelism, Zhang and Tong (2020) posited that VI companies experience more growth when they innovate than those who are not VI companies. In addition, Acemoglu et al. (2010) recognized the importance of VI, precisely that which firm economies are better in VI companies because they bring higher contracting costs and more remarkable financial development. The study of Kaiser and Obermaier (2020) shares similar findings; however, the author found that the degree of VI has a diminishing relationship with financial performance. This finding could be the reason why Fig. 1 earlier shows that in the restaurant industry, it may not be profitable to increase further VI by owning raw materials such as a vegetable farm, fish farm, and chicken farm, among others, to serve the primary requirement of the business.

Market factors were rated the highest among all exogenous variables, and it is the only variable rated very high, indicating that the market factors strongly affect the business. Several researchers believe that market factors have strong relations with the reasons for vertical integration, such as those Simar (2018), Soliani and Argoud (2018), and Hamdaoui and Bouayad (2019), among others. The reasons to vertically integrate are the industry conditions such as capital intensity, industry barriers, economies of scale, industry growth rate, and other market factors in favorable conditions. The respondents recognize this in the high rating given to all the indicators of market factors such as market coverage (MCV), industry competition (ICO), and industry entry (INE). The mean scores of all indicators are almost similar.

RQ2 Level of Endogenous Variable

Table 3 presents the level of the exogenous variable. The result shows that the VI of restaurants is rated high, including all the indicators. It means that the vertical integration of the restaurants in the city is often observed. The study on VI adoption has a relationship with Fig. 1 presented earlier descriptively, showing that the VI of most restaurants improved from 10 years ago until the present. The growth is present in all VI structures were online, and social media in business increased significantly. However, the same figure shows that the VI of restaurants is generally limited to the structures, procurement function, production in the kitchen and kitchen resources, dining processes and dining resources, and online and social media activities.

Table 3. Level of Endogenous Variable

Variables	Mean	SD	Descriptive Level
Vertical Integration Adoption	**3.876**	**0.956**	**High**
Economies of Scope (EOS)	3.686	1.041	High
Firm Capabilities (FCP)	3.989	1.101	High
Quality Externalities (QEX)	3.955	1.129	High

Fig. 1 helped understand the data in table 3, where the respondents rated economies of scope (EOS), firm capabilities (FCP), and quality externalities (QEX) as high but not very high. In like manner, Fig. 1 showed the VI structure of restaurants in Davao City is often limited and not complete VI. Firm capabilities were rated the highest among the indicators. This result indicates that the study respondents recognized the importance of adding, buying, and developing assets to improve efficiencies, especially cost efficiencies. The high rating of VI can be correlated with the growth of the restaurants over the year, as presented in Fig. 1.

This result supports the study of Ursino (2015), Copenhagen Economics (2020), and Luco and Marshall (2020), among others. This study supports the study of Ursino (2015), which recognized the primary reason for vertically integrating, is to achieve the optimal level of VI. The said study showed some companies VI entirely, as in the case of Apple integrating software and hardware. However, in the case of IBM, it only controlled the hardware. On the part of mobile phones, some are entirely VI, and some others produce hardware and outsource design and software development. The said study emphasized that decisions to VI have something to do with companies' decisions to ensure optimization of resources. The highest rating of FCP in this study is in line with the results of several studies on resource optimization. Thus, restaurants vertically integrate also because of resource optimization.

RQ3 Relationships of Variables

All exogenous variables such as SMOT, BEFF, FECO, and MFAC are significantly correlated with the endogenous variable VIAD ranging from r=.637 to r=.744, significant at *p*<.000. The result shows that MFAC has the highest correlation with VIAD at r=.744 significant at *p*<.000. The correlation analysis helped guide in coming up with the trials for the best fit model. The correlation results reflect the outcome of the best fit model in many respects. Table 4 shows the correlation between exogenous and endogenous variables, while table 4.1 presents the correlation of indicators.

Table 4. Correlation of Variables

	Vertical Integration Adoption
Strategic Motive	.671** (.000)
Business Efficiencies	.689** (.000)
Firm Economies	.637** (.000)
Market Factors	.744** (.000)

Table 4.1 Correlation of Indicators

		VERTICAL INTEGRATION ADOPTION			
		VIAD 1	VIAD 2	VIAD 3	Overall
STRATEGIC MOTIVE	SMOT 1	.449** (.000)	.475** (.000)	.512** (.000)	.547** (.000)
	SMOT 2	.422** (.000)	.447** (.000)	.491** (.000)	.526** (.000)
	SMOT 3	.372** (.000)	.621** (.000)	.592** (.000)	.607** (.000)
	Overall	.501** (.000)	.619** (.000)	.637** (.000)	**.671** (.000)**
		VERTICAL INTEGRATION ADOPTION			
		VIAD 1	VIAD 2	VIAD 3	Overall
BUSINESS EFFICIENCIES	BEFF 1	.406** (.000)	.666** (.000)	.692** (.000)	.676** (.000)
	BEFF 2	.473** (.000)	.518** (.000)	.520** (.000)	.576** (.000)
	BEFF 3	.400** (.000)	.549** (.000)	.434** (.000)	.527** (.000)
	Overall	.491** (.000)	.671** (.000)	.642** (.000)	**.689** (.000)**
		VERTICAL INTEGRATION ADOPTION			
		VIAD 1	VIAD 2	VIAD 3	Overall
FIRM ECONOMIES	FECO 1	.530** (.000)	.450** (.000)	.451** (.000)	.543** (.000)
	FECO 2	.414** (.000)	.414** (.000)	.416** (.000)	.474** (.000)
	FECO 3	.504** (.000)	.589** (.000)	.688** (.000)	.680** (.000)
	Overall	.547** (.000)	.545** (.000)	.581** (.000)	**.637** (.000)**
		VERTICAL INTEGRATION ADOPTION			
		VIAD 1	VIAD 2	VIAD 3	Overall
MARKET FACTORS	MFAC 1	.422** (.000)	.703** (.000)	.704** (.000)	.701** (.000)
	MFAC 2	.400** (.000)	.718** (.000)	.692** (.000)	.694** (.000)
	MFAC 3	.459** (.000)	.721** (.000)	.717** (.000)	.726** (.000)
	MFAC 3	.449** (.000)	.753** (.000)	.742** (.000)	**.744** (.000)**

The correlation tables show that all variables and indicators are correlated at p<.000.

Regression Analysis

Table 5 presents the regression model. The four assumptions of linear regression were met, including a normality test using a normal distribution curve, the assumption of linearity, homoscedasticity, and the test of independence. The significant influence of SMOT, BEFF, FECO, and MFAC on VIAD is presented in a model showing the regression p-values of the model are mixed. SMOT and MFAC show the p-values are significant, while the p-values of BEFF and FECO were not significant.

Table 5. Regression Model

	Model	Unstandardized	Std Error	Standardized	t	p	Colinearity Statistics	
							Tolerance	VIF
Ho	(intercept)	3.876	0.059		65.906	<.001		
H_1	(intercept)	0.302	0.182		1.653	0.099		
	SMOT	0.223	0.072	0.194	3.072	0.002	0.363	2.753
	BEFF	0.182	0.072	0.164	2.531	0.012	0.347	2.885
	FECO	0.108	0.065	0.103	1.674	0.095	0.383	2.609
	MFAC	0.386	0.056	0.422	6.844	0.001	0.382	2.620
	R = 0.790	R^2 = 0.623	F = 107.193	p = 0.05				

This resulting model shows that the restaurant's strategic motive (SMOT) and the various market factors (MFAC) influence the restaurant's decision to adopt vertical integration (VIAD). The model further presents that SMOT influences VIAD 22.3% of the time while MFAC influences VIAD 38.6%. The linear equation of the model thus would be:

VIAD=0.223(SMOT)+0.386(MFAC)+0.302(Constant)

The model implies that the decision of companies to adopt VI in the restaurant setting is affected by their strategic motive and the various market factors significantly. The influence of SMOT on VIAD is because of its strong influence on organizational performance. Multiple studies support this finding, including those of George et al. (2019), highlighting strategic management's positive and significant impact on organizations. The said study also emphasized that organizations should institutionalize strategic management to maximize the impact on organizations. Various authors share similar findings on strategic management, including Soloducho-Pelc (2015), Gomera et al. (2018), and Kabeyi (2019), among many others.

RQ 4. Best Fit Model

The best fit model was derived by ensuring it passed several criteria set under the structural equation model (SEM). The best fit model possessed values that fit the SEM criteria, including chi-square/ degrees of freedom, normed fit index, the goodness of fit index, Tucker-Lewis index, RMSEA, and comparative fit index. The standards used for this study include the chi-square, where the value must be higher than zero but lower than 2, the normed fit index, the Tucker-Lewis index, the goodness of fit index, and the comparative fit index be greater than 95%. The root means square of error approximation value must be less than 0.05, and the p-close value must be greater than 0.05.

The best fit model is shown in Fig. 2 using study criteria that fall within the acceptable range of all the test indices. Although the hypothesized model indicates relationships among the latent variables, it does not determine their influence on each other. The best fit model shows that among the four exogenous variables, the latent variables of the study, only SMOT and MFAC were found to influence VIAD significantly.

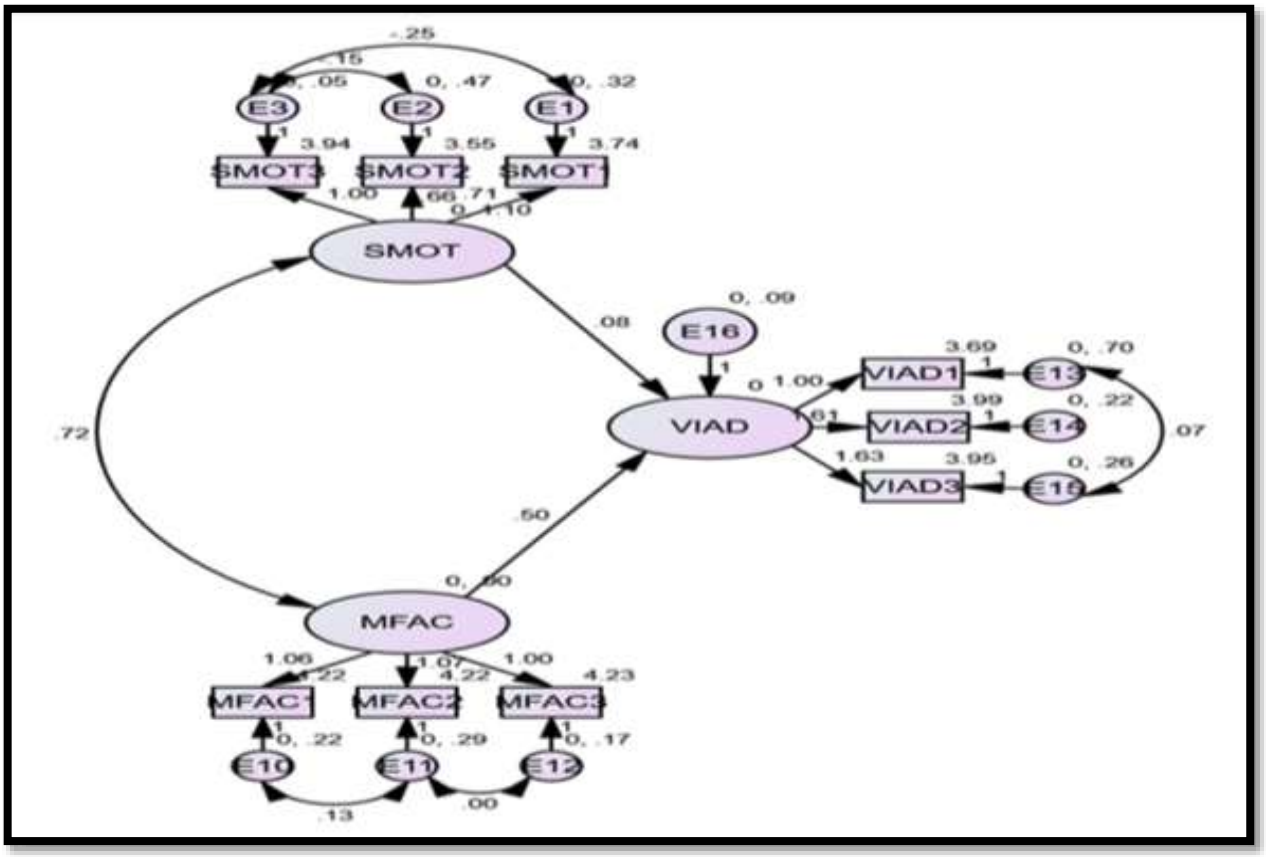

Fig. 2. Best Fit Model

This result came out after some modifications to the hypothesized model resulting in the best fit model. The result means that the respondents who are owners or managers of restaurants to adopt a VI strategy are primarily influenced by the strategic motive of the business and the various market factors.

Vertical integration and strategic motives of a business were correlated in many studies, including those of Ursino (2015), ILO (2017), Chen et al. (2018), and Sun et al. (2019), among others. Although correlated, businesses vary in their strategic reasons for adopting VI, including improving organizational performance, effectiveness, proper allocation of resources, and innovation. Market factors, too, were correlated with VI. Market factors like the industry's size, industry competition, industry barriers to entry, and demand requirements, among many others, are some reasons to decide to adopt VI. This finding supports the studies of Hamdaoui and Bouayad (2019) and Patil (2020). In several studies, authors identified industry structure, transaction costs, and market conditions as factors to vertically integrate. However, the variations in the market factors may or may not be the reason for VI. When market factors are favorable and effective, it may be the reason to integrate vertically. The authors pointed out that a low level of food security in the said study and a strong dependence on food importation may make market conditions not statistically significant. Finaly, Varchenko (2021) found that unfavorable conditions in the industry cause outflow of capital which may dissuade firms from VI.

In contrast, the results of this study show that market factors are statistically significant because the market conditions of Davao City are favorable to the restaurant industry. Davao City has been rich in vegetables, fruits, crops, and livestock, among many others, for decades back, as pointed out by Barth (1982), until more studies of a farm growing output, as pointed out by Murray-Prior et al. (2011). Other market factors are favorable such as easy entry into the restaurant business requiring a low level of capitalization despite strong competition. The industry size of the food industry of Davao is enormous, and some food production output was exported, which may have an impact on the industry. The vibrant market factors made it a significant element in influencing VI.

The structural equation model also revealed that the observed variables that have formed part of the best fit model include strategic planning, business goals, and business growth sustainability of the latent variable SMOT. In addition, the observed variables market coverage, industry competition, and industry entry of the latent variable market factors were also included in the best fit model. Finally, all observed variables of the latent variable VIAD were also included in the best fit model, including

economies of scope, firm capabilities, and quality externalities. Most of these observed variables were correlated with each other and influenced their respective latent variable. However, the study's findings, especially the best fit model, show no indirect relation to other latent variables.

Table 6. Direct Effects of the Exogenous Variables on the Endogenous Variables

Variables	Direct Effect	Indirect Effect	Total Effect
SMOT	.080	-	.080
MFAC	.503	-	.503

Table 6 shows the best fit model variables and presents the direct relationship of the latent variables, specifically the exogenous variables SMOT and MFAC, towards the endogenous variable VIAD. However, the best fit model does not include indirect effects on any exogenous variables towards the endogenous variable. The best fit model shows that the regression coefficient at which SMOT influences VIAD is.080, although the value is meager but still significant at $p<0.05$. In addition, the regression coefficient of MFAC is .503 significant at $p<0.05$, making MFAC the best predictor of the model.

In addition, the model also found BEFF and FECO to be insignificant. In many studies, business efficiencies and firm economies are strongly associated with SMOT. Business efficiencies are strategic goals of an organization. The goals are essential to the organization, such as production throughput, inventory controls, sales achievement, service quality, and market share, among so many others. This importance is pointed out in several studies, such as those of Cummings and Worley (2005), Vance (2006), Gagne (2018), and van Oijen (2020), among many others. Firm economies are also associated with SMOT. The decisions related to firm economies have been purposively directed toward providing economic incentives to firms. The study of Luck (2019) showed evidence of the decision of VI to offer Chinese firms economic incentives. Sabet et al. (2016) share the same finding among fast-evolving industries to optimize strategies. Thus, BEFF and FECO may not have been included in the model, but SMOT in the model indeed represents them. Table 7 provides the data of the model estimates of the regression coefficients.

Table 7. Estimates of Variable Regression Weights in Best Fit Model

			Estimate	S.E.	Beta	C.R.	P-Value
VIAD	<---	SMOT	.080	.039	.135	2.065	.039
VIAD	<---	MFAC	.503	.062	.774	8.046	***
SMOT3	<---	SMOT	1.000		.979		
SMOT2	<---	SMOT	.662	.068	.711	9.717	***
SMOT1	<---	SMOT	.714	.069	.797	10.326	***
MFAC3	<---	MFAC	1.000		.918		
MFAC2	<---	MFAC	1.074	.053	.884	20.384	***
MFAC1	<---	MFAC	1.060	.048	.906	21.965	***
VIAD1	<---	VIAD	1.000		.594		
VIAD2	<---	VIAD	1.608	.156	.903	10.326	***
VIAD3	<---	VIAD	1.629	.146	.892	11.145	***

4. CONCLUSION

The empirical results helped shape the conclusions. The study concludes that Vertical Integration is present among restaurants in a limited fashion. The descriptive profile of the restaurants supports the conclusion by illustrating the VI structure of the supply chain of the restaurant industry in Davao City, indicating that it is commonly limited to procurement, production, restaurant services, and online marketing. The raw materials are still widely outsourced, while delivery services to customers are similar and widely used third-party delivery services. Vertical integration has increased over time among restaurants in Davao City since ten years ago. More importantly, online channels for marketing increased significantly and faster over a few years. The adoption of VI

is firm-specific, although there exists a common practice among many restaurants within the industry. In the case of the restaurant industry in Davao City, the vertical integration structure is a portion upstream and a part downstream and seldom do companies practice complete vertical integration.

This study also found that all exogenous and endogenous variables were correlated, and the correlations between latent and observed variables were all strong positive relationships. The respondents rated market factors with a very high rating among all the exogenous variables. In addition, The study generated the best fit model; this study concludes that strategic motive and market factors were found to significantly influence the decision of restaurant owners and managers to integrate vertically. When SMOTs are active and embedded in organizational structures and processes, it may pave the way for VIAD. Likewise, on MFAC as the best predictor of VIAD, the study concludes that the decision of the restaurants to VI is influenced strongly when market factors are favorable to the company. However, no causal relationship exists between the exogenous variables SMOT and MFAC in the best fit model.

REFERENCES

1) Zhu, Susan H.; Ma, X.; Sauerwald, S. and Peng, M. W. (2019). Home Country Institutions Behind Cross-Border Acquisition Performance. Journal of Management, 45 (4). 10.1177/0149206317699520
2) Riordan, Michael H. and Loertscher, Simon (2019). Make and Buy: Outsourcing, Vertical Integration, and Cost Reduction, American Economic Journal: Microeconomics
3) Tyagi, Kalpana (2018). Implications of AT&T/Time Warner Decision for Vertical Integration and Media Business Models in the Age of Digitization. https://ssrn.com/abstract=3198183 or http://dx.doi.org/10.2139/ssrn.3198183
4) Pussep, Anton & Harnisch, Stefan & Buxmann, Peter (2012). "Value Creation and Firm Integration: First Empirical Evidence for the Software Industry," Publications of Darmstadt Technical University, Institute for Business Studies (BWL) 57629, Darmstadt Technical University, Department of Business Administration, Economics and Law, Institute for Business Studies (BWL).
5) Patil, Vikas (2020). Appraisal of vertical Integration of dairy farm.
6) Herrera, Maria Noriza Q. Herrera; Depositario, Dinah Pura T.; Gutierrez, Arlene C.; and Velasco, Dia Noelle F. (2020). An Analysis of Key Success Factors (KSFs) of Cooperative Feed Mill Enterprises in Batangas Province, Philippines. Easychair.org.
7) Kaiser, Florian, and Obermaier, Robert (2020). "Vertical (Dis-)Integration and Firm Performance: A Management Paradigm Revisited," Schmalenbach Business Review, Springer; Schmalenbach-Gesellschaft, vol. 72(1).
8) Ursino Giovanni (2015). "Supply Chain Control: A Theory of Vertical Integration," The BE Journal of Economic Analysis & Policy, De Gruyter, vol. 15(4).
9) Luco and Marshall (2020). The Competitive Impact of Vertical Integration by Multiproduct Firms.
10) Leahy, D., & Montagna, C. (2015). Economizing, Strategising, and the Vertical Boundaries of the Firm. (Discussion Paper in Economics; Vol. 15, No. 5). University of Aberdeen Business School.
11) Macchiavello, Rocco & Miquel-Florensa, Josepa (2017). Vertical Integration and Relational Contracts: Evidence from the Costa Rica Coffee Chain. CAGE Online Working Paper Series 321, Competitive Advantage in the Global Economy (CAGE).
12) Yamawake, T., Yamoto, S., Goi, H., and Lee, D. (2018). Determinants of Vertical Integration: Investment Efficiency, Product Differentiation, and Firm Size. Theoretical Economics Letters, 8, 1028-1043. DOI: 10.4236/tel.2018.85071.
13) Copenhagen Economics Journal (2020). https://www.copenhageneconomics.com/dyn/resources/Publication/publicationPDF/0/550/1606320780/copenhagen-economics-the-economic-rationale-for-vertical-integration-in-tech.pdf
14) Grau Grau, Alfredo & Reig, Araceli (2015). Vertical integration and profitability of the agrifood industry in an economic crisis context. Spanish Journal of Agricultural Research. 13. e0107. 10.5424/sjar/2015134-7487.
15) Sun, Z., Li, Y., Wang, M., Wang, X., Pan, Y., & Dong, F. (2019). How does vertical integration promote innovation corporate social responsibility (ICSR) in the coal industry? A multiple-step multiple mediator models. PloS one, 14(6), e0217250.
16) Gallizo, José & Moreno, Jordi & Salvador, Manuel. (2019). The influence of family ownership in the profitability of vertically integrated companies. Evidence from the Spanish agrifood industry. Spanish Journal of Agricultural Research. 17. e0108. 10.5424/sjar/2019172-14215.
17) Kalantari, Fatemeh & Tahir, Osman & Akbari, Rahele & Azemah, Nur. (2018). The Importance of the Public Acceptance Theory in Determining the Success of the Vertical Farming Projects.
18) Unveren, Hakan (2019) "Comprehensive Poultry Supply Chain Model with Vertical and Horizontal Linkages: Implication of Domestic and International Shocks".

19) Hamdaoui, Mohamed & Bouayad, Brahim. (2019). Determinants and Effects of Vertical Integration on the Performance of Moroccan Manufacturing. Athens Journal of Mediterranean Studies. 5. 10.30958/ajms.
20) Hutzschenreuter, Thomas & Gröne, Florian (2009). Changing Vertical Integration Strategies under Pressure from Foreign Competition: The Case of US and German Multinationals. Journal of Management Studies. 46. 269-307. 10.1111/j.1467-6486.2008.00811.
21) Marchak, Volodymyr (2003). Determinants of Vertical Integration in Oil Industry: Case of Transition Economies.
22) Bulahan, Lyndon & Pestano, Zenon & Dacanay, Jovi & Galeon, Francis Jake & Manalili, Rafael. (2014). Industry Monitor: Vertical and horizontal Integration as a strategy in the Philippine telecommunications industry.
23) Fehrn, Bjorn (2019). Aviation Forum Munich: Vertical Integration on the way back. Leeham News and Analysis.
24) Cuesta, J.I., Noton, C., & Vatter, B. (2019). Vertical Integration between Hospitals and Insurers. HEN: Hospitals (Topic).
25) Karbowski, Adam; Prokop, Jacek (2019) : The Impact of Vertical R&D Cooperation on Market Performance of Firms, Entrepreneurial Business and Economics Review. ISSN 2353-8821, University of Economics, Cracow, Vol. 7. http://dx.doi.org/10.15678/EBER.2019.070405.
26) Briones, Roehlano M. (2013). Market Structure and Distribution of Benefits from Agricultural Exports: The Case of the Philippine Mango Industry, PIDS Discussion Paper Series, No. 2013-16, Philippine Institute for Development Studies (PIDS), Makati City.
27) Lopes, Sílvia PhD*; Fernandes, Óscar B. MSc†; Marques, Ana Patrícia BSc*; Moita, Bruno BSc†; Sarmento, João MD, MSc†; Santana, Rui (2017). Can Vertical Integration Reduce Hospital Readmissions? A Difference-in-Differences Approach, Medical Care. Volume 55 - Issue 5. doi: 10.1097/MLR.0000000000000704.
28) Zhang, Dongli (2013) "The Revival of Vertical Integration: Strategic Choice and Performance Influences," Journal of Management and Strategy, Journal of Management and Strategy, Sciedu Press, vol. 4(1).
29) Panayides, Photis M, Andreou, Panayiotis C., Louca, Christodoulos (2016). The impact of vertical integration on inventory turnover and operating performance, International Journal of Logistics Research and Applications, 19:3. DOI: 10.1080/13675567.2015.1070815
30) Hansman, Christopher; Hjort, Jonas, León-Ciliotta, Gianmarco, and Teachout, Matthieu (2017). "Vertical Integration, Supplier Behavior, and Quality Upgrading among Exporters," Working Papers 961, Barcelona Graduate School of Economics.
31) Nie, Pu-yan & Wang, Chan & Yang, Yong-cong, 2019. "Vertical integration maintenance commitments," Journal of Retailing and Consumer Services, Elsevier, vol. 47(C).
32) Zhang, Yuchen and Tong, Tony W. (2020). How Vertical Integration Affects Firm Innovation: Quasi-Experimental Evidence. Organization Science 32(2). https://doi.org/10.1287/orsc.2020.1396.
33) Gil, R. (2015). Does vertical integration decrease prices? Evidence from the paramount antitrust case of 1948. American Economic Journal: Economic Policy, 7(2).
34) Bettinger, Eric P., Lindsay Fox, Susanna Loeb, and Eric S. Taylor. 2017. "Virtual Classrooms: How Online College Courses Affect Student Success." American Economic Review, 107 (9): 2855-75. DOI: 10.1257/aer.20151193
35) Goundar, Sam. (2012). Chapter 3 - Research Methodology and Research Method.
36) Tan, Leonard. (2014). Correlational Study.
37) Hult, G. Tomas M. & Ketchen, David & Cui, Anna & Prud'homme, Andrea & Seggie, Steven & Stanko, Michael & Xu, Shichun & Cavusgil, S. (2006). An Assessment of the Use of Structural Equation Modeling in International Business Research. Research methodology in strategy and management. 3. 385-415. 10.1016/S1479-8387(06)03012-8.
38) Kaplan, D. (Ed.) (2009). Structural equation modeling (2nd ed.): Foundations and extensions (2nd ed.) (Vols. 1-10). SAGE Publications, Inc. https://www.doi.org/10.4135/9781452226576.
39) Pilati, R., & Laros, J. A. (2007). Modelos de equações estruturais em psicologia: Conceitos e aplicações [Structural equation modeling in psychology: Concepts and applications]. Psicologia: Teoria e Pesquisa, 23(2), 205–216. https://doi.org/10.1590/S0102-37722007000200011.
40) Patino CM, Ferreira JC. (2018). Inclusion and exclusion criteria in research studies: definitions and why they matter. J Bras Pneumol. 44(2):84. DOI: 10.1590/s1806-37562018000000088. PMID: 29791550; PMCID: PMC6044655.
41) Senate Economic Planning Office (2012). The MSME Sector at a Glance. Senate of the Philippines.
42) Pornel, Jonny & Saldaña, Giabelle. (2013). Four Common Misuses of the Likert Scale. Philippine Journal of Social Sciences and Humanities. 18.
43) Sauro, Jeff (2014). Assessing the Validity of Your Research. Measuring U. https://measuringu.com/validity-research/.

44) Datt, S. and Chetty, P. (2016). 8-step procedure to conduct qualitative content analysis in a Research. Project Guru. https://www.projectguru.in/qualitative-content-analysis-research/

45) Gosselin, A., Carillon, S., Coulibaly, K. et al. (2019) Participatory development and pilot testing of the Makasi intervention: a community-based outreach intervention to improve sub-Saharan and Caribbean immigrants' empowerment in sexual health. BMC Public Health 19, 1646. https://doi.org/10.1186/s12889-019-7943-2.

46) Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. International journal of medical education, 2, 53–55. https://doi.org/10.5116/ijme.4dfb.8dfd.

47) Ghazali, Nor. (2016). A Reliability and Validity of an Instrument to Evaluate the School-Based Assessment System: A Pilot Study. International Journal of Evaluation and Research in Education (IJERE). 5. 148. 10.11591/ijere.v5i2.4533. Gil, Ricard. 2015. "Does Vertical Integration Decrease Prices? Evidence from the Paramount Antitrust Case of 1948." American Economic Journal: Economic Policy, 7 (2).

48) Hakimpoor, H., (2014). Strategic planning process dimensions and SMEs performance. Proceedings of 10th Global Business and Social Science Research Conference, Beijing, China.

49) Samad, S., Yusuf, M.S.Y., Ahmed, W.A., & Yakub, M.A. (2015). Modeling strategic planning, transformational leadership and organizational performance: The Integration of strategic management theories. Australian Journal of Basic and Applied Sciences, 9(2).

50) Bryson, John & George, Bert (2020). Strategic Management in Public Administration. 10.1093/acrefore/9780190228637.013.139.

51) Gomera, S., Chinyamurindi, W.T. & Mishi, S. (2018). Relationship between strategic planning and financial performance: The case of small, micro, and medium-scale businesses in the Buffalo City Metropolitan. South African Journal of Economic and Management Sciences 21(1), a1634. https://doi.org/10.4102/sajems.v21i1.1634.

52) Fernando, Y., Jabbour, C. J. C., & Wah, W. X. (2019). Pursuing green growth in technology firms through the connections between environmental innovation and sustainable business performance: does service capability matter?. Resources, Conservation and Recycling, 141, 8-20

53) Shah, Syed Saad Hussain; Yasmin, Robina; Waris, Sidra; Jaffari, Ahsan Raza, Aziz, Jabran; Ejaz, Wasiq; and Fatima, Maira (2020). The impact of HR dimensions on organizational performance. Iqra University, Islamabad Campus, Pakistan. African Journal of Business Management Vol. 6(4). DOI: 10.5897/AJBM11.1025

54) Jiang, K., Lepak, D. P., Hu, J., & Baer, J. C. (2012). How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanisms. Academy of Management Journal, 55(6).

55) Diamantidis, A.D. and Chatzoglou, P. (2019). Factors affecting employee performance: an empirical approach. International Journal of Productivity and Performance Management, Vol. 68 No. 1. https://doi.org/10.1108/IJPPM-01-2018-0012.

56) Boon C, Eckardt R, Lepak D P and Boselie P (2018). Integrating strategic human capital and strategic human resource management. International Journal of HRM, 19 (1).

57) Van Dooren, W., Bouckaert, G. and Halligan, J. (2015). Performance management in the public sector, Routledge

58) Ployhart, Robert & Hale, Donald. (2014). The Fascinating Psychological Microfoundations of Strategy and Competitive Advantage. Annual Review of Organizational Psychology and Organizational Behavior. 1. 145-172. 10.1146/annurev-orgpsych-031413-091312.

59) Siciliano M. D. (2015). Advice networks in public organizations: The role of structure, internal competition, and individual attributes. Public Administration Review 75.

60) Luck, Philip (2019). Global supply chains, firm scope, and vertical integration: evidence from China, Journal of Economic Geography, Volume 19, Issue 1.

61) Acemoglu, D.; Griffith, R.; Aghion, P.; & Zilibotti, F. (2010). Vertical Integration and Technology: Theory and Evidence. Journal of the European Economic Association, 8(5). http://www.jstor.org/stable/25700913

62) Simar, Hadrien (2018). Vertical integration under external shocks: A theoretical approach. Faculté des sciences économiques, sociales, politiques et de communication, Université catholique de Louvain, 2018. Prom.:Johnen, Johannes. http://hdl.handle.net/2078.1/thesis:15747

63) Soliani, R.D., & Argoud, A.R. (2018). The Vertical Integration Of The Logistics Operations In The BrazilianSugar-Energy Industry.

64) George, Bert; Walker, Richard M.; Monster, Joost (2019). Does Strategic Planning Improve Organizational Performance? A Meta-Analysis. https://doi.org/10.1111/puar.13104.

65) Sołoducho-Pelc, Letycja (2015). Planning Horizon as a Key Element of a Competitive Strategy. Journal of Economics, Business and Management vol. 3, no. 2.

66) Kabeyi, Moses (2019). Organizational Strategic Planning, Implementation, and Evaluation with analysis of challenges and benefits for-profit and nonprofit organizations. International Journal of Applied Research and Studies. 5. 27-32. 10.22271/allresearch.2019.v5.i6a.5870.
67) International Labor Organization (2017). World Employment Social Outlook of 2017. Geneva.
68) Chen, S., Burström, B., Sparring, V. (2018) Vertical integrated service model: an educational intervention for chronic disease management and its effects in rural China – a study protocol. BMC Health Serv Res 18. https://doi.org/10.1186/s12913-018-3355-8
69) Varchenko,O.(2021).Directions for Ensuring the Equivalence of Exchange in Agri-Food Chains in Ukraine. Visegrad Journal on Bioeconomy and Sustainable Development,10(1) 29-34. https://doi.org/10.2478/vjbsd-2021-0007
70) Barth, G. A. (1982). Food supply, distribution, and marketing in Davao City, Philippines (Doctoral dissertation, University of Colorado at Boulder).
71) Murray-Prior, R., Israel, F., Bacus, R., Apara, D., Concepcion, S., Montiflor, M., ... & Rola-Rubzen, M. F. (2011). Reducing poverty through participatory action learning and action research processes with smallholder vegetable farmers in Mindanao. Extension Farming Systems Journal, 7(2).
72) Cummings, T. G., & Worley, C. G. (2005). Organization development and change. Mason, Ohio: Thomson/South-Western.
73) Vance, R. J. (2006). Employee engagement and commitment: A guide to understanding, measuring, and increasing engagement in your organization. Alexandria, VA: The SHRM Foundation.
74) Gagne, Marylene (2018). From Strategy to Action: Transforming Organizational Goals into Organizational Behavior. International Journal of Management Reviews. British Academy of Management.
75) Van Oijen, Pieter (2020). Driving Value Creation through Proper Design of Goal Realization Frameworks. Performance Management. https://doi.org/10.1177/2394964320938220
76) Sabet, Ehsan & Yazdani, Nahid & De Leeuw, Sander. (2016). Supply chain integration strategies in fast-evolving industries. The International Journal of Logistics Management. 28. 29-46. 10.1108/IJLM-01-2015-0013.