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ISSN: xxxxxx

THEME: “ENABLING THE TRANSFORMATION OF RESILIENT BUSINESS ENVIRONMENT AND INNOVATION ECOSYSTEM IN THE ASEAN”

CO-ORGANIZED BY THE RAMON V. DEL ROSARIO COLLEGE OF BUSINESS
OF DE LA SALLE UNIVERSITY



ASEAN UNIVERSITY NETWORK FOR BUSINESS AND ECONOMICS

**2021 ASEAN UNIVERSITY NETWORK
BUSINESS AND ECONOMICS VIRTUAL CONFERENCE**

April 16, 2021



Conference theme: "Enabling the Transformation of Resilient Business Environment and Innovation Ecosystem in the ASEAN"

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- To strengthen and leverage the relationship among members in the areas of business and economics
- To uplift the quality level of programs in the areas of business and economics among members with a possible engagement of other ASEAN universities
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Parallel Session A: Organizational Resilience A

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The impact of environmental turbulence on the organizational resilience: a perspective from telecommunication sector in Indonesia

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Abstract: This study examines the effect of pandemic turbulence, market turbulence, and technology turbulence on organizational resilience in Indonesia's telecommunication sector during the COVID-19 pandemic. It uses purposive sampling to collect responses from senior management executives of telecommunication companies in Indonesia. A total of 108 valid questionnaires were collected and analyzed using SmartPLS. The research found that pandemic turbulence affects organizational resilience through the mediating role of market turbulence and technological turbulence. Market turbulence positively influences organizational resilience directly and through the mediation of technological turbulence. The choice of a single industry sector in a single country provides a limitation on external validity. It is therefore suggested to extend the research efforts to other industry sectors in multi-country environments. Environmental turbulences drive new organizations to build organizational resilience to ensure business continuity. Thus, telecommunication companies should focus on opportunity-seeking actions since turbulence creates room to improve. This study's results advance the concept of organizational resilience by understanding the role of each type of environmental turbulence. The findings indicate that market turbulence and technological turbulence positively influence organizational resilience. The study results also demonstrated that market turbulence positively influences technological turbulence. Furthermore, pandemic turbulence does not directly affect organizational resilience but through market turbulence and technological turbulence.

Key Words: COVID-19, market turbulence, pandemic turbulence, technological turbulence, organizational resilience

1. INTRODUCTION

The world has been experiencing contemporary pandemic nearly two decades since the SARS and avian influenza flu spreaded in 2003 and 2004 (Lee, 2014; Lee, 2020). The recent COVID-19 pandemic has also been affecting major life loss as well as economic indirectly in many countries. The global GDP growth has been predicted to be declined

from 2.3% to 2.2% due to this new pandemic (The Economist Intelligence Unit, 2020). It has created market turbulence as it has affected to major industries starting with tourism, retails especially clothing and cosmetics. Impact of the pandemic on the automobiles and telecom industries cannot be avoided as the major parts are manufactured in China and it slowed down also the supply chain activities for those industries. The financial services industries are also

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influenced indirectly as an implication of these market turbulence (The Economist Intelligence Unit, 2020; McKinsey & Company, 2020).

Despite this global economic devastation due to this pandemic, telecom industry is considered to be the least affected due to increasing needs of telecom infrastructures to support internet capability and availability to accommodate the new normal of working from work from office to work from home. IBM reported that there is indication of the expanded needs around 30%-50% from current telecom capacity to support remote working for business and education while at the same time keeping social and physical distances (Wilson, 2020). This phenomenon has changed the set up of technology roadmap of operators and telecom vendors in anticipating this surge of needs which may lead to speeding up of new telcom technology availability to the market and it is understood as technological turbulence. Regardless of this telecom and internet capacity surge, the pressure on operation and critical capital expenditure is to be taken into highest consideration to avoid financial problem of the telecom companies (Adjovi & Flores, 2020; Bailey, 2020; Allen, 2020; Sale *et al.*, 2020; Casey & Wigginton, 2020).

This situation also happens in Indonesia, as part of global telecommunication network, where telecom products and services from multinational companies are used in the network. The arrangement of work from home is advised to be supported by secured and reliable technology facilities are supported information and telecommunication throughout major telecommunication providers (PwC Indonesia, 2020). Even some governmental institution such Ministry of Communication and Information, Indonesian Federal have issued letter of recommendation to provide exception of works during social and physical distance policy enforcement. Especially in Jakarta, the government has issued formal instruction to provide this exception to work for telecom industry. This will increase the resilience of telecom sector to stay in focus in delivering the business during this pandemic. The aim of this paper is to explore how the pandemic turbulence creates market and technological turbulences that affect organization resilience in telecom sector. Furthermore, this paper explores how telecom sector can anticipate the market and technological turbulence as the impact pandemic turbulence in order to be sustained in running their business.

2. METHODOLOGY

The design of this research is empirical and quantitative. Furthermore it uses a positivist paradigm perspective as it explores the causal effect of multiple observed variables (Sekaran & Bougie, 2016). The unit of analysis is company that has business portfolios such as telecommunication operators, telecommunication infrastructure providers, professional services, system integration, software and hardware supporting vendors, and any other relevant telecommunication business. The proposed sampling method is convenient and snow-ball sampling as the population of the companies is unknown (Naderifar *et al.*, 2017). This research targets the respondents who have senior management position such as business owners, member of the board of directors, CxO level, vice presidents and general/senior managers in the company. The data are collected through electronic survey using a structured questionnaires with 5 points Likert scale (from 1="strongly disagree" to 5="strongly agree") that is distributed through emails, LinkedIn and closed networking tools such Whatsapp due to a pandemic situation with a social distancing regulation. To check the research tools' validity and reliability, a pilot test has been performed. The model is built using Structural Equation Model to analyze the relationships among multiple constructs at the same time, where the model is further analyzed using SmartPLS with proposed error $\alpha = 0.05$.

3. RESULTS AND DISCUSSION

Prior to model measurement, it is statically assessed to fulfill the model fit requirement (Hair *et al.*, 2017). From the construct reliability and validity test, it can be found that the variables PT, MT, TT and OR have each Cronbach's Alpha, ρ_A and composite reliability more than 0.7. Meanwhile their Average Variance Extracted (AVE) is more than 0.5. It shows that all indicators have equal outer loadings on construct and the model has a high level of convergent validity. The next stage is the discriminant validity test using indicator Heterotrait-Monotrait (HTMT) ratio and result shows that they are less than 0.9 which indicates that path models are conceptually similar (Henseler *et al.*, 2015). The effect size f^2 is also measured to measure contribution of exogenous construct to endogenous latent variables and the result shows that PT has value less than 0.02 that indicates small effect to OR, meanwhile TT and MT

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has relatively moderate to high effect. The effect size shall measure the contribution of exogenous construct to endogenous latent variable. From Table 6, it can be seen that the effect size of MT and OR, PT and TT as well as PT and MT are considered as small as the values are more than 0.02 but smaller than 0.15, the effect size of PT and OR is very small as it is even less than 0.02. TT and OR has medium effect size as the value of f^2 is slightly more than 0.15 and finally the effect size MT and TT is large as its value is more than 0.35. The next assessment result is to determine the coefficient of determination (R^2). The R^2 of MT is 0.076 as shown in Table 7 and it is considered weak as it is less than 0.25, meanwhile R^2 of OR and TT is respectively 0.387 and 0.402 that can be considered moderate. This means that OR is predicted 40.2% by ET, PT and MT, while the remaining 59.8% is predicted by other constructs (Hair et al., 2017). The blindfolding and predictive relevance Q^2 was measured. The Q^2 of PT is MT, OR and TT are respectively 0.037, 0.194 and 0.256 which are more than 0. According to (Hair et al., 2017) the result indicates that the exogenous constructs have predictive relevance for the endogenous construct under consideration. The last analysis is to measure predictor construct's tolerance or variance inflation factor (VIF) of inner structural model.

The VIF of each construct shows that it is bigger than 0.2 and less than 5. It means that the collinearity in the model is still within the acceptable level. Finally, the Standardized Root Mean Square (SRMR) has the value of 0.08 which means it is still within the acceptable level and hence the model can be considered as fit with the real condition (Hair et al., 2017) and this study's GoF is 0.45 as result of square root of product of average AVE and average R square, hence the GoF indicates significance of model fit (Wetzels et al., 2009).

1.1. Hypotheses testing

The next assessment to test the hypothesis and in for this purpose a bootstrapping method with sub-samples of 10.000 is used as suggested by Hair et al. (2017). The result of this analysis is shown in Figure 1.

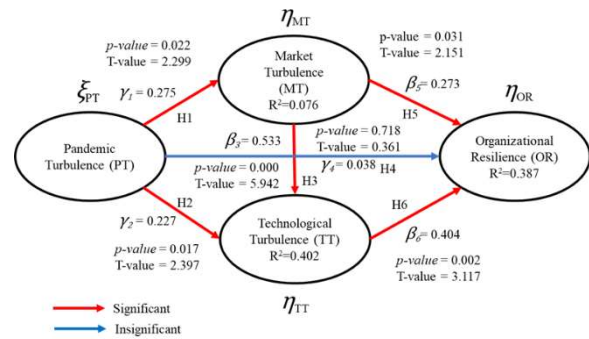


Figure. 1

The measurement model's analysis has been performed as shown in Table 10. This is done to test research hypotheses. The hypotheses are considered to be supported if the calculated t-value is more than 1.96 (t-table using $\alpha = 0.05$). From Figure 1 it can also be seen that MT and TT fully mediate PT-OR path since no significant direct relationship from PT to OR (Hair et al., 2017).

4. CONCLUSIONS

The result of this research has advanced the concept of organizational resilience proposed by Ma et al. (2018) into our empirical study, where organizational resilience is seen as ability to bounce back and improvement in responding disruptive situations (ability to recover after destruction). From the data analysis it can be concluded that pandemic turbulence does not directly influence the organizational resilience. The pandemic turbulence has a small effect to market turbulence, regardless the significance of the relationship between them, however the market turbulence has a large effect to technological turbulence compared to the direct effect of pandemic turbulence to technological turbulence. Seeing the path pandemic turbulence (PT) – marketing turbulence (MT) – technological turbulence (TT), it can also be concluded that market turbulence has a complementary mediating effect to technological turbulence. That means, in telecom sector in Indonesia pandemic turbulence can influence technological turbulence either directly or through market turbulence. In other words, during the pandemic period of COVID-19 impacts either through market rapid changes due to the increasing retail demand of telecom (internet) services while decreasing enterprise demand or through change of telecom technology roadmap to accommodate the

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market demand and it is the survival means through adjustment of this sector in facing such turbulence (Ma et al., 2018). This phenomenon is in line with the study of McKinsey in Spain (2020b), where telecom sector has medium level of recovery time and 10% negative deviation of demand shock compared to 2019.

Furthermore, the data analysis leads to conclusion that both market and technology mediating the pandemic turbulence to organizational resilience. It means that in the case of telecom sector in Indonesia, the pandemic influence first the market and/or technology then affect the resilience of telecom supporting companies in Indonesia. However, since the loading factor of path market turbulence and organizational resilience is less than the loading factor of path technological turbulence and organizational resilience, then the technological turbulence is considered as a key determinant factor in telecom sector's resilience in Indonesia. This could be the main focus of the telecom sector in anticipating the pandemic turbulence.

5. ACKNOWLEDGMENTS

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6. REFERENCES

- Adjovi, J., & Flores, A. (2020). COVID-19: the telecoms industry will suffer less than many others, and can thus help to support the economy (Issue April).
- Allen, J. (2020). COVID-19: the role of telecoms policy makers in levelling up (Issue June).
- Bailey, H. (2020). COVID-19: telecoms operators will not be immune to the impact of the outbreak – recovery could take up to 4 years (Issue May 2020).
- Casey, M., & Wigginton, C. (2020). Understanding the sector impact of COVID-19: Telecommunications. Deloitte, 1–2.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). A primer on partial least squares structural equation modeling (PLS-SEM) (Second). SAGE Publication Inc.,
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Lee, S. T. (2014). Predictors of H1N1 Influenza Pandemic News Coverage: Explicating the Relationships between Framing and News Release Selection. *International Journal of Strategic Communication*, 8(4), 294–310. <https://doi.org/10.1080/1553118X.2014.913596>
- Lee, T.-L. (2020). Global Health in a Turbulence Time: a Commentary. *Asian Journal of Wto & International Health Law and Policy*, 15(1), 27–60.
- Ma, Z., Xiao, L., & Yin, J. (2018). Toward a dynamic model of organizational resilience. *Nankai Business Review International*, 9(3), 246–263. <https://doi.org/10.1108/NBRI-07-2017-0041>
- McKinsey & Company. (2020a). COVID-19: Briefing note, June 25, 2020 (Issue June).
- McKinsey & Company. (2020b). Spain after COVID-19: From resilience to reimagination (Issue June).
- Naderifar, M., Goli, H., & Ghaljaie, F. (2017). Snowball Sampling: A Purposeful Method of Sampling in Qualitative Research. *Strides in Development of Medical Education*, 14(3). <https://doi.org/10.5812/sdme.67670>
- PwC Indonesia. (2020). COVID-19: Considering the potential business impacts for Indonesia.

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Sale, S., Wood, R., & Rebbeck, T. (2020). *Analysys Mason: COVID-19 will lead telecoms revenue to decline by 3.4 % in developed markets in 2020* (Issue April 2020).

Sekaran, U., & Bougie, R. (2016). *Research methods for bussiness* (Seventh). John Wiley & Sons, Ltd.

The Economist Intelligence Unit. (2020). *The impact on social on industry. The Economist.*
<https://www.incae.edu/sites/default/files/coronavirus-report-v4-1.pdf>

Wetzels, M., Odekerken-Schröder, G., & Oppen, C. Van. (2009). *Assessing Using PLS Path Modeling Hierarchical and Empirical Construct Models : Guidelines.* *MIS Quarterly*, 33(1), 177–195.

Wilson, C. (2020). *The Telecom Industry Is Proving Essential In The COVID-19 Response.*
<https://www.forbes.com/sites/ibm/#44f5f28063d5>

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Resilience and Hospitality in a Pandemic: A Case on Discovery Hospitality and Customers of the Philippine Hotel Industry

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Abstract: The purpose of this research is to assess the resilience of Discovery Hospitality in the context of the COVID-19 pandemic by investigating the organization's internal response and external perception through the industry's customers. The study's theoretical framework was developed by Xiao and Cao (2017), which claims that resilience is the result of complicated interactions between numerous factors and levels of analysis. Lee, Vargo, & Seville (2013) identifies situation awareness and adaptive capacity as key indicators of resilience from an internal organizational perspective, and this was used to assess Discovery Hospitality. Our analysis of qualitative evidence suggests that Discovery Hospitality demonstrates resilience from an internal perspective. To evaluate the external perspective of resilience, we employed statistical analyses of customer loyalty. We deployed a survey and gathered 117 respondents, following the framework developed by Raju, Roy, & Mandal (2018). Customer loyalty is strongly influenced by customer engagement, which is affected by a customer's perceived hotel resilience, which is anteceded by the hotel's perceived information quality. We conclude that a combination of internal resilience and external customer engagement activities enable an organization to be resilient.

Key Words: Hotel Resilience; Organizational Resilience; Customer Loyalty; Adaptive Capacity; Situation Awareness

1. INTRODUCTION

The COVID-19 pandemic has crippled the global business landscape, leaving industries and economies in states of loss and decline. The widespread disease has imposed movement restrictions that negatively impact tourism, a significant contributor to the Philippines' Gross Domestic Product (GDP) through the Tourism Direct Gross Value Added (TGVA), which was 12.7% or ₱2.2 trillion in 2019 (Philippine Statistics Authority, 2019). The looming crisis reinforces the need to study industry vulnerabilities and organizational resilience

to better cope with current and future challenges. Prayag (2018) highlights the prominent literature gaps on tourism resilience. This study hopes to bridge the gap so that organizations are equipped with extensive reference materials as a crisis response tool. With tourism accounting for 5.71 million or 13.5% of the Philippine employment (Philippine Statistics Authority, 2020) and the industry's significant economic contributions through the TGVA, industry members must develop the proper response. This study analyzes resilience through industry leader, Discovery Hospitality, providing an internal management perspective that looks into the solutions

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being implemented by key decision-makers, and an external customer perspective, which analyzes the relationship between customer-perceived hotel resilience and customer outcomes, such as increased loyalty. The findings of this study may assist key decision-makers in developing a clearer view of the key components that drive the success and longevity of their business amidst uncertainties and adverse events. In the study of Melián-Alzola, Fernández-Monroy, & Hidalgo-Peñate (2020), the internal perspectives of hotel resilience can be observed from the dimensions of strategy and change; giving importance to the hotel's internal stakeholders' capacity to plan actionable strategies and flexibility to innovate and adapt. McManus (2008) identified **situation awareness** and **adaptive capacity** as key aspects of the developed organizational resilience model. This entails the organization's recognition of their place in the wider network they exist in and understanding that they must work with the other members of the network to get past a crisis successfully. These include the following indicators: (1) roles and responsibilities, (2) understanding and analysis of hazards and consequences, (3) connectivity awareness, (4) recovery priorities, (5) internal and external situation monitoring and reporting, and (6) informed decision making. Adaptive capacity covers the appropriate culture and dynamics within an organization that allows it to make good decisions, both in regular operations and crises. These include the following indicators: (1) silo mentality, (2) communications and relationships, (3) strategic vision and outcome expectancy, (4) information and knowledge, (5) leadership, management, and governance structures, (6) innovation and creativity, and (7) devolved and responsive decision making. From the external and customer perspective, hotels need to look into the factors that dictate customer travel decisions and prove their resiliency. Raju, et al. (2018) measured resilience through the following indicators and variables: (1) **perceived information quality**, utilizing an information systems perspective in identifying key enablers of resilience and having the ability to make a message be relevant, timely, accurate, and comprehensive, (2) **perceived system quality**, the degree to which a system can be easily used or 'user-friendly' and sustain its online operations during disruptions, (3) **perceived hotel resilience**, the adaptive capacity of the e-retailer and its information technology (IT) partners in sustaining online operations when faced with disruptions which factors into customer satisfaction, (4) **customer satisfaction**, in the context of hotel guest satisfaction,

Knutson (1988) identifies cleanliness, attention to detail, and a provision of a safe environment, (5) **customer engagement**, acknowledges the probability that customers may get satisfied if their expectations are fulfilled through their engagement with the brand as they evaluate its products and services over time, and (6) **customer loyalty**, which is a biased behavioral response expressed over time by some decision-making unit, with respect to one or more alternative brands out of a set of such brands. Raju et al. (2018) established customer engagement and customer satisfaction as enablers of customer loyalty.

Academic literature illustrates resilience and organizational resilience in different perspectives and fields of study; therefore, it is relatively difficult to establish a single definition that would set the definite meaning of the concept (Annarelli & Nonino, 2016). This uncovers a gap in the definitions of resilience based on specific industries or sectors. According to Melián-Alzola, Fernández-Monroy, & Hidalgo-Peñate (2020), there is a significant research gap on organizational resilience within the context of the tourism industry. Furthermore, there are also no currently available articles concerning the assessment and analysis of tourism and hotel resilience in the Philippine context; this paper aims to close this gap.

2. FRAMEWORKS

In the theoretical model developed by Xiao & Cao (2017), an integrative construct for resilience is developed from the notion that resilience results from complicated interconnections between numerous factors and levels of analysis. As seen in Figure 1 below, there are three main levels of resilience within an organization, each with a distinct set of interconnected factors. It conceptualized a "level transition" that refers to the ability of resilience at the individual level to help develop group resilience, which will eventually lead to the achievement of organizational resilience.

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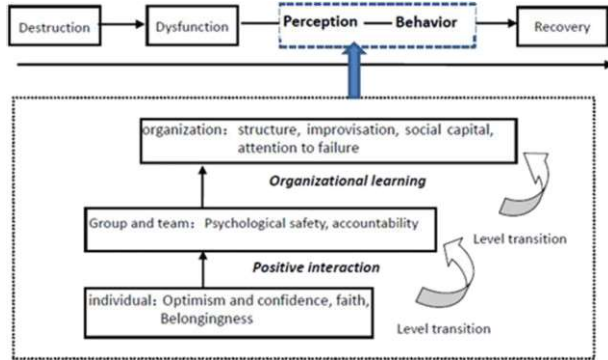


Fig. 1. Theoretical Model for Organizational Resilience (Xiao & Cao, 2017)

The internal perspective includes two hypotheses to be tested: situation awareness and adaptive capacity leading to hotel resilience.

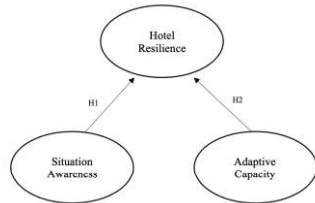


Fig. 2. Conceptual Framework for Organizational Resilience (Lee, Vargo, & Seville, 2013)

Situation Awareness and Hotel Resilience

H1 The situation awareness of the managers of Discovery Hospitality has a positive influence and strong relationship with and towards hotel resilience.

Adaptive Capacity and Hotel's Resilience

H2 The adaptive capacity of the managers of Discovery Hospitality has a positive influence and strong relationship with and towards hotel resilience.

There are seven hypotheses to be tested in the external perspective, wherein perceived hotel resilience is the main dependent variable to be measured, which ultimately influences customer loyalty. The interconnected influences are to be measured by the corresponding independent variables.

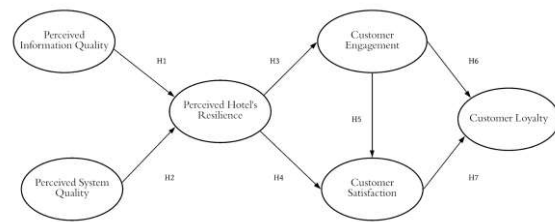


Fig. 3. Conceptual Framework for Customer Perceived Resilience (Raju, Roy, & Mandal, 2018)

Perceived Information Quality and Hotel's Resilience

H1 Perceived information quality regarding a hotel has a positive influence on perceived hotel's resilience.

Perceived System Quality and Hotel's Resilience

H2 Perceived system quality regarding a hotel has a positive influence on perceived hotel's resilience.

Perceived Hotel's Resilience and Customer Engagement

H3 Perceived hotel's resilience has a positive influence on customer engagement.

Perceived Hotel's Resilience and Customer Satisfaction

H4 Perceived hotel's resilience has a positive influence on customer satisfaction.

Customer Engagement and Customer Satisfaction

H5 Customer engagement has a positive influence on customer satisfaction.

Customer Engagement and Customer Loyalty

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H6 Customer engagement has a positive influence on customer loyalty.

Customer Satisfaction and Customer Loyalty

H7 Customer satisfaction has a positive influence on customer loyalty.

3. DISCOVERY HOSPITALITY PROFILE

Discovery Hospitality is an award-winning group of hotels and resorts spread across the Philippines. The hotel group currently runs five establishments in the Philippines, namely Manila, Makati, Ortigas, Boracay, and Palawan. While their existing establishments cater to the high-end and business market, they also have new developments targeted toward the millennials. In 2019, Discovery Hospitality experienced a 71% increase in revenues, with total booking amounting to ₱958.637 million.

4. METHODOLOGY

This paper employs a single-embedded case study research designed with combined quantitative and qualitative data collection methods and analysis. For the study on the internal perspective of hotel resilience, an interview was conducted with Discovery Hospitality's Senior Vice President of Sales and Operations. The interview focused on the two-pronged approach in measuring resilience: adaptive capacity and situation awareness. The interview questionnaire was adapted from the study of Lee, Vargo, and Seville's Composite Inventory (2013). The study on the external perspectives on hotel resilience utilized an online survey form distributed from December 21, 2020, to January 4, 2021, specifically Google Forms, that was disseminated to individuals that fit the criteria of the target market of Discovery Hospitality. The external stakeholders were represented by individuals with demographics that fit the following: (1) males and females, (2) aged 15 to 65 to encompass the family-oriented target market of Discovery Hospitality with (3) disposable **household** income levels of ₱50,000.00, and (4) live within urban, semi-urban, and rural areas wherein Discovery Hospitality establishments are located. A survey questionnaire with a 27 question, 7-point Likert (ordinal) scale was

used. This was adapted from Mandal, Raju, and Roy's Measurement Items (2018). Raju and et al.'s study's survey questionnaire was pre-tested by 43 participants.

The qualitative data gathered through the interview, regarding internal perspective, was analyzed and presented in a matrix, wherein the interviewee's perceptions and opinions were recorded under the specific variables it relates to. Through this, the researchers will be able to confirm or deny the significance of the relationships between the variables in the conceptual model. For the statistical treatment of the quantitative data regarding the external perspective, Cronbach's α was used to test the reliability of the survey questions. Pearson's r , p -value, and confidence intervals were also used to confirm the reliability of independent variables with dependent variables. Generalized Linear Models (GLM) mediation analysis was used to confirm or deny the significance in the relationships between the independent, mediating, and dependent variables present in the model.

5. RESULTS AND DISCUSSIONS

For the qualitative results and discussion for the internal perspective of hotel resilience, the organization's internal response is measured through adaptive capacity and situation awareness following the framework developed by Lee, Vargo, & Seville (2013). The three indicators with the highest saturation for situation awareness are: (1) recovery priorities, with the hotel's three-pronged approach, resort pre-openings, and turning Discovery Suites and Primea into government-accredited city quarantine hotels; (2) understanding and analysis of hazards and consequences, by having all employees be 'abreast with the latest and acknowledging that they have a current financial crisis where most initiatives are geared towards solving; and (3) internal and external situation monitoring and reporting, using their consistent engagement with respective government agencies regarding emerging crises to foresee and direct their strategic vision, such as seeing strong opportunities in domestic market trade. On the other hand, the top indicators for adaptive capacity are: (1) innovation and creativity, by having the 'Discovery Touch' present in all decisions made by low-level staff

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to top management; (2) leadership, management, and governance structures, by developing a 'survival plan' for its existing business and branching out to allied businesses; and (3) devolved and responsive decision making, by having a crisis management team that systematically delegates authority and roles where the aforementioned indicators reflect the areas where Discovery Hospitality put the greatest focus in surviving the effects of the pandemic. A commonality among these is the constant assessment and monitoring of the situation and the ability to react quickly and creatively. These key practices were repeatedly mentioned by the key informant as essentials for equipping Discovery Hospitality with what they needed to increase resilience based on their definition and understanding of the practice.

The external quantitative assessment of the customer perspective measures customer loyalty through (1) perceived information quality, (2) perceived system quality, (3) perceived hotel's resilience, (4) customer engagement, and (5) customer satisfaction. This framework developed by Raju, Roy, & Mandal (2018) follows the premise that the customer's perceived hotel resilience will affect customer loyalty. To further signify construct reliability, test items were tested on Jamovi. With results yielding a Cronbach's α greater than 0.7, the measures demonstrate desirable statistical reliability. Out of the 117 individuals, 53% were female while 47% were male. 62.4% were 20 years old and below, and 37.6% were from ages 21-30. Through the correlation matrix, the correlation strength of the hypotheses in the conceptual framework may be assessed using Pearson's r . There is sufficient initial evidence to conclude that the study confirms the conceptual framework in terms of correlation, as shown in Table 1.

Table 1. Hypotheses Testing based on Correlation Matrix

H's	Upper CI	Lower CI	Pearson's r	Strength of Correlation
H1	0.668	0.414	0.554	Strong
H2	0.644	0.378	0.524	Strong

H3	0.479	0.153	0.326	Moderate
H4	0.661	0.402	0.544	Strong
H5	0.491	0.168	0.340	Moderate
H6	0.706	0.472	0.602	Strong
H7	0.571	0.274	0.434	Moderate

Given the statistical significance of the bivariate correlations, we proceeded to analyze the model through multiple regression. The results show that the hypothesized determinants of hotel resilience account for 36.4 percent of its variance, which is acceptable for cross-sectional studies. The practical implication is that management should prioritize enhancing information quality to attract target customers.

Concerning the influence of hotel resilience on customer engagement, data shows a relatively low explanatory power as it covers only 9.84 percent of changes associated with customer engagement. Meanwhile, the equation involving customer engagement's effect on the variance related to customer satisfaction yielded a value of 31.4 percent. In line with this, customer engagement reveals a moderate effect size. Thus, managers should be mindful that perceived resilience has a greater effect on engagement rather than satisfaction. While organizations can opt to implement activities to enhance customer engagement, this must be accompanied by efforts aimed at hotel resiliency to further influence customer satisfaction effectively. Lastly, determinants of customer loyalty indicate 41.2 percent of its changes. In the latter model, customer engagement serves as the best predictor for customer loyalty due to its strong effect size compared to the moderate effect size generated by customer satisfaction. For this reason, business practitioners are recommended to focus efforts on enhancing customer engagement to retain clients and patrons of their operations. In executing this, management may supplement these activities with directives for customer satisfaction if the organization is capable.

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To assess which antecedents possess the most significant influence on customer loyalty in consideration of all independent variables in the framework, the study further utilized advanced mediation analysis through the jAMM module of jamovi. According to the findings of the model, the indirect paths that are statistically significant to customer loyalty are: (1) *information quality* \Rightarrow *hotel resilience* \Rightarrow *customer engagement* \Rightarrow *customer loyalty* and (2) *system quality* \Rightarrow *hotel resilience* \Rightarrow *customer engagement* \Rightarrow *customer loyalty*. Results demonstrate that only the total paths associated with perceived information quality show a statistically significant effect on customer loyalty, having an estimated effect size of 0.63. Furthermore, only customer engagement is found to be a reliable predictor of customer loyalty as satisfaction loses its statistical significance in the presence of other variables. Following this external perspective, this study concludes that perceived information quality and perceived system quality positively influence perceived hotel's resilience. This indicates that Discovery Hospitality's customers' perception of resilience will be influenced by the informativeness of the organization's existing platforms for communication. Discovery Hospitality should then focus on strengthening its informativeness to retain and increase customer loyalty. The second conclusion following the customer's perspective is that a customer's perceived hotel resilience has a positive influence on customer engagement and customer satisfaction. Perceived hotel's resilience has a strong effect on customer satisfaction. These relationships enforce the achievement of perceived resilience as instrumental to the continued operations of a hotel. Customer engagement and customer satisfaction both affect the continued support of customers, especially in times of crisis. A third conclusion following the customer's perspective is that customer engagement leads to customer satisfaction and customer loyalty. Customer engagement was the best predictor for customer loyalty based on statistical analysis.

The internal and external perspectives have a point of intersection when framing customer engagement as a recovery priority. Customer engagement has a strong effect on customer loyalty. The Senior Vice President we interviewed reiterated that apart from counteracting losses with their development of allied businesses and partnerships across other industries, Discovery Hospitality made it a top priority to maintain their existing customer base through different initiatives of engagement, such as

the 'We Miss You' campaign which entails sending letters to existing customer database, hosting free webinar series about the tourism industry and the pandemic, constant update of partnerships and policies in their website like the alliance with Lysol and the *Safe Space* program. Based on the data presented and the previous discussions, the study concludes that both the internal and external perspectives are essential for an organization to pursue resilience. There is an intricate interconnection in how internal decisions can be guided by external factors such as the customer's perspective and the events affecting the industry. The study further concludes that Discovery, based on qualitative interviews and quantitative analysis of customer perspectives, demonstrates resilience in dealing with the COVID-19 pandemic as their response embodies both adaptive capacity and situation awareness, and this, in turn, maintains loyalty from the hotel's customer base, thus further strengthening the organization's survival and recovery.

6. CONCLUSION

From an internal management perspective, the current Discovery Hospitality Senior Vice President believes resilience is easier when members of the organization are open-minded and readily accept when something is not working, creatively come up with new ideas, and adjust quickly to the changes around them. This definition complements the framework of Lee, Vargo, & Seville (2013), which states that situation awareness and adaptive capacity lead to organizational resilience. From an external customer perspective, we further conclude that the research questions and corresponding hypotheses validated the relationship of information quality and system quality on hotel resilience. These indicators are drivers of hotel resilience. Consequently, hotel resilience and customer engagement were determined to influence customer satisfaction significantly, ultimately purporting that hotel resilience affects customer outcomes.

7. RECOMMENDATIONS AND MANAGEMENT IMPLICATIONS

Due to the research design of the single embedded case study, we provide the following

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recommendations for future researchers. (1) A further study on multiple cases can be conducted to use the determined internal and external indicators towards the development of a hotel resilience plan in the context of the Philippine tourism and hospitality industry. (2) A further study can be conducted that encompasses a more well-rounded approach by interviewing client-facing staff and middle-level managers, as well as increasing the sample size for the customer survey.

Table 2. Summary of Results

Research Questions	Hypotheses Tested	Summary of Results
RQ1: What is the significance and extent of effect of perceived information quality and perceived system quality on hotel resilience?	H1, H2	Perceived information quality (<i>upper C.I. 0.759, lower C.I. 0.280, estimate 0.520</i>) and perceived system (<i>upper C.I. 0.581, lower C.I. 0.164, estimate 0.373</i>) significantly influenced hotel resilience and moderately accounts for 36.4 percent of the variance on hotel resilience.
RQ2: What is the significance and extent of effect of hotel resilience on customer engagement?	H3	Hotel resilience (<i>upper C.I. 0.638, lower C.I. 0.193, estimate 0.415</i>) significantly influences customer engagement; however, weakly accounts for only 9.84 percent of the changes associated with customer engagement.
RQ3: What is the significance and extent of effect of hotel resilience and customer engagement on customer satisfaction?	H4, H5	Hotel resilience (<i>upper C.I. 0.454, lower C.I. 0.2276, estimate 0.341</i>) and customer engagement (<i>upper C.I. 0.189, lower C.I. 0.0113, estimate 0.1</i>) significantly influenced customer satisfaction and moderately accounts for 31.4 percent of the variance on customer satisfaction.
RQ4: What is the significance and extent of effect of customer engagement and customer satisfaction on customer loyalty?	H6, H7	Customer engagement (<i>upper C.I. 0.501, lower C.I. 0.274, estimate 0.388</i>) and customer satisfaction (<i>upper C.I. 0.560, lower C.I. 0.150, estimate 0.355</i>) significantly influenced customer loyalty and strongly accounts for 41.2 percent of the variance on customer loyalty.
RQ5: Which combination of variables best explain customer loyalty?	All prior hypotheses	Using the GLM Mediation Analysis in Jamovi, only customer engagement is a reliable predictor of customer loyalty. Total effects cannot yield accurate insights due to the software's limitation.

For management, it might be tempting to focus solely on cutting costs to survive the pandemic. However, the priority should be maintaining information quality, perceived systems quality, and engaging customers through delivering the promise of high-quality service. Thus, cost-cutting should remove activities that do not matter to customers (i.e., non-essentials)—and this can only be discovered through constant feedback. Furthermore, we do not advocate for the mindless removal of the workforce, which might be the tempting short-term fix to save costs. Rather, we advocate for removing non-essential frills, because the workforce is necessary for maintaining both information and systems quality. Thus, we end

this article by referring to the COVID-19 as a *great restart*. This means a return to the fundamentals of hospitality—constantly communicating with customers and the workforce, doing away with non-essentials, and improving the quality of information and the organizational system. Resilience and customer loyalty are cultivations of these humanistic relationships.

8. CREDIT AUTHORSHIP CONTRIBUTION STATEMENT

Ysabel Y. Balila: Conceptualization, Project Administration, Visualization, Writing - original draft, Writing - review & editing. **Ma. Alexandra Luisa N. Galvez:** Conceptualization, Visualization, Writing - original draft, Writing - review & editing. **Maria Katrina E. Santos:** Conceptualization, Visualization, Writing - original draft, Writing - review & editing. **Aedriel Philipson S. Secosana:** Conceptualization, Formal Analysis, Writing - original draft, Writing - review & editing. **Patrick Adriel H. Aure:** Supervision, Writing - review & editing.

9. REFERENCES

- Annarelli, A., & Nonino, F. (2016). Strategic and operational management of organizational resilience: Current state of research and future directions. *Omega*, *62*, 1-18. doi:10.1016/j.omega.2015.08.004
- Destination The Philippines*. (2018, December 13). Retrieved from TTG Mena : <http://www.ttgmena.com/destination-the-philippines/>
- Discovery World Corporation. (2019). *2019 Annual Report*. Retrieved from <http://www.discovery.com.ph/Templates.php?link=files%5CInvestor%20Relations%5Canual%20report%5CDWC%20Annual%20Report%202019.pdf>

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- Lee, A. V., Vargo, J., & Seville, E. (2013). Developing a tool to measure and compare organizations' resilience. *Natural Hazards Review*, *14*(1), 29-41. doi:10.1061/(asce)nh.1527-6996.0000075
- McManus, S., Seville, E., Vargo, J., & Brunsdon, D. (2008). Facilitated process for improving organizational resilience. *Natural Hazards Review*, *9*(2), 81-90. [https://doi.org/10.1061/\(ASCE\)1527-6988\(2008\)9:2\(81\)](https://doi.org/10.1061/(ASCE)1527-6988(2008)9:2(81))
- Melián-Alzola, L., Fernández-Monroy, M., & Hidalgo-Peñate, M. (2020). Hotels in contexts of uncertainty: Measuring organisational resilience. *Tourism Management Perspectives*, *36*. doi:10.1016/j.tmp.2020.100747
- Prayag, G., Chowdhury, M., Spector, S., & Orchiston, C. (2018). Organizational resilience and financial performance. *Annals of Tourism Research*. doi:10.1016/j.annals.2018.06.006
- Raju, G. A., Roy, S., & Mandal, S. (2018). An empirical inquiry into the antecedents and consequences of perceived e-retailer's resilience. *International Journal of Services, Economics and Management*, *9*(4), 208. doi:10.1504/ijsem.2018.097785
- The jamovi project (2020). *jamovi*. (Version 1.2) [Computer Software]. Retrieved from <https://www.jamovi.org>.
- Xiao, L., & Cao, H. (2017). Organizational Resilience: The Theoretical Model and Research Implication. *ITM Web of Conferences*, *12*, 04021. doi:10.1051/itmconf/2017120402

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Flooding Experiences and Dimensions of Organizational Resilience of MSMEs in CAMANAVA Cities in the Philippines

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Abstract: Resource scarcity among MSMEs, worsened by the ongoing pandemic, expose them to unforeseen risks. On top of the pandemic, the Philippines is often devastated by many calamities, micro, small and medium enterprises (MSMEs) definitely suffer losses. This study analyzed the moderating effect flooding experiences on the MSMEs' qualities as assessed by the owners in terms of their perceptual stance, contextual integrity, strategic capacity, and strategic acting that shape the varying dimensions of organizational resilience. Key findings showed that these qualities when combined with flooding experiences have significantly influenced the organizational resilience dimensions of resourcefulness but not rapidity and redundancy. Perceptual stance of the MSMEs when combined with flooding experiences have significantly influence the robustness dimension of organizational resilience. Key recommendations include the involvement of employees in planning for the management of unforeseen events and the development of practical and doable capacity-building measures on developing rapidity and robustness and intensifying resourcefulness in disaster management for MSME owners.

Key Words: organizational resilience, strategic acting, strategic capacity, MSME survival, resourcefulness, disaster management

1. INTRODUCTION

The Philippines is known to be one of the most disaster-prone countries in the world, due to its geographical location (World Bank, 2005). The Global

Facility for Disaster Reduction and Recovery (2017 as cited in Disaster Risk Reduction in the Philippines: Status Report, 2019) revealed that at least 60% of the country's total land area is exposed to numerous hazards, wherein 74% of its population is affected.

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Typhoons and floods are the most common natural disasters of the country wherein according to Jha et al. (2018), they accounted for over 80% of the natural disasters from over half a century, occurring at least 20 times per year. These natural calamities have cost the Philippines about 20 billion dollars with an annual average of 1.2 billion in socioeconomic damages (Jha et al., 2018). The micro, small, and medium enterprise (MSME) sector contributes a large portion of economic development but is among the most vulnerable groups given the frequent natural disasters. According to MSME Statistics (2018), 99.52% of operating establishments in the Philippines are MSMEs. Unfortunately, these MSMEs are among the more vulnerable sections of an economy as they are relatively resource-constrained and less resilient (Samantha, 2018). Since MSMEs are a smaller business scale compared to large multinational companies, they have less financial and technical resources resulting in the lack of a risk management mechanism. If not addressed properly, the lack of adaptability and resilience towards natural calamities could potentially end numerous MSMEs in the near future. With the frequent occurrences of natural disasters in the country, this timely research aimed to determine how these MSMEs recover from the experience of natural disasters. More specifically, the study focused on how frequent flooding affects their organizational resilience in terms of the dimensions of robustness, redundancy, resourcefulness and rapidity of response to flooding, given that it is the most destructive and frequent phenomenon being experienced in CAMANAVA which include the cities of Caloocan, Malabon, Navotas and Valenzuela City in the Philippines. In testing the moderating effects of flooding experience towards the relationship between variables, the researchers were guided by these specific questions:

1. *What is the effect of flooding experiences and firm characteristics towards the relationship of perceptual stance, contextual integrity, strategic capacity, and strategic acting on the dimensions of organizational resilience in terms of robustness, redundancy, resourcefulness and rapidity of response to flooding of MSMEs in CAMANAVA?*

2. *Which of the organizational resilience dimensions of robustness, redundancy, resourcefulness and rapidity of response to flooding are significantly affected by MSME's perceptual stance, contextual integrity, strategic capacity, and strategic acting?*
3. *What actions can be recommended to improve the organizational resilience in terms of robustness, redundancy, resourcefulness and rapidity of response of MSMEs in CAMANAVA?*

2. LITERATURE REVIEW

Organizational Resilience (OR), as cited by Lengnick-Hall, Beck and Lengnick-Hall (2011), is the organization's ability to effectively absorb, develop situation-specific responses to, and ultimately engage in transformative activities to gain advantage from unpredictable disruptions that potentially threaten organization survival. Resilient organizations are known to have the ability to move forward despite their challenging experiences. They formulate positive experiences, particularly through change, progress, and increased responsibility despite facing adversity and accomplishing numerous challenges that the organization encounters (van Dam, 2009; and Suryaningtyas et al., 2019). Over the years, resilience has been improving as businesses would be dealing with adversities that would lead them to business tragedy (Arsovski et al., 2015). Lengnick-Hall et al. (2011) discussed that for an organization to develop a capacity for resilience, it is needed as it is developed over time. Specific cognitive abilities, behavioral characteristics, and contextual conditions were mentioned to be the three elements in building organizational resilience capacity.

Perceptual Stance (PS) In a psychological aspect, perceptual stance is defined as a metaphorical extension of perceptual perspective (Dixon & Bortolussi, 2018). Prior experience, beliefs, and physical positioning are some factors that influence one's perspective (Jabali, 2015). In an organizational context, it is crucial for them to have a sense of reality as identifying their own strengths and weaknesses

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becomes an important factor for resolving future problems. The sense of reality is a dimension of resilience that is said to be a compatible perception of self-image with reality (Hind, Frost & Rowley, 1996). Particularly with organizations, positivity comes alongside with unity, wherein having a unified commitment allows an organization to reunite as one, particularly when disturbances occur (Kantur & İşeri-Say, 2012). Unified commitment is an overall commitment to the organization and the community (Horne, 1997). As such, variations in perceptions are able to strengthen the resilience of the whole organization.

Contextual Integrity (CI) The term contextual integrity where the information is based on the set of roles people portray and norms that they share (Nissenbaum, 2004, as cited in Criado & Such, 2015). The same study goes on further to say that these norms help maintain contextual integrity for it establishes what information can be shared in specific contexts and among people (Nissenbaum 2004, as cited in Criado & Such, 2015). One of these contexts is when the organization is faced with unfortunate times, making the sharing of information crucial amongst the members of an organization. In times of misfortune, having a strong employee involvement and empowerment system makes for better decision and solution making (Kantur & İşeri-Say, 2012). Employee involvement then becomes a tool of adaptation where employees assist the organization for the changing environment (Doe, 1994, as cited in Kantur & İşeri-Say, 2012). It starts with compatible interaction wherein having a strong and clear organizational purpose encourages employees to become aligned with the firm's core values, and enables them to respond to environmental conditions more effectively (Kantur & İşeri-Say, 2012; Lengnick-Hall, Beck & Lengnick-Hall, 2011). However, when organizations are faced with disastrous situations, a high level of support is still needed. Kantur & İşeri-Say (2012) says that resilience can be better developed in an environment filled with support and care for this will help the people overcome external threats and changing circumstances.

Strategic Capacity (SC) Strategic capacity is a

collective and on-going, action-oriented process that describes how an institution lines up its internal components to achieve some common ends (Thoenig & Paradise, 2016). It can be seen as the steps an organization takes to ensure that its internal players are able to cope and address situations and act in a way that is aligned with the company's goals and objectives. Organizations must take into consideration various factors that can affect their decisions. One of which is their access to resources, where Mallak (1998) explains that the adequacy of resources makes for adaptive decision making. For example, Jung (2017) finds that organizations that have more access to the right resources and information have a better chance of recovering from a catastrophic event. The presence of allocated resources (money, supplies, information) ultimately gives the people within the organization the tools to make the right decisions. However, in order for this to be effective, there is also a need for people who can implement this adaptation when the situation calls for it. Additionally, members of the resilient organization share decision-making power, which leads to timely and effective responses (Mallak, 1998). Behavioral capabilities (e.g., improvisation, experimentation, and knowledge implementation) ensure that these resources are utilized with necessary action (Duchek, 2019).

Strategic Acting (SA) Organizations need proactive actors to engage in different strategic tools in order to enhance and develop processes within the organization. Acting strategically is the ability of an organization to be flexible, elastic, and adaptive in order to survive continuous changes in its environment (Kantur & İşeri-Say, 2012). This indicates their ability to innovate and develop through turbulent environments while showing a balance between exploration and application of assets (Dias & Escoval, 2014). Research emphasizes the importance of strategic action, particularly with the continuous changes in the business environment. In order to respond to these changes, organizations need innovators who become the actors of strategic management within the organization. Van Dam (2009) says that having an effective adaptability

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response means that the organization can respond and recover from negative situations and experiences. However, employees only tend to be engaging when they trust their organization which, according to Jena & Memon (2017), can be enhanced with flexibility, affecting the overall confidence and innovative behavior of employees within the organization. As such, employees who trust and grow through their organization become more productive actors of the business.

Flooding Experiences (FE) The cost of disasters falls overwhelmingly on low to middle-income countries where vulnerability to risk and degrees of suffering, are determined by levels of economic development, rather than simple exposure to natural hazards (Economic Losses, Poverty & Disasters, 2018). Due to its geographical location, the Philippines is no exception, being amongst the countries most prone to natural disasters. The most frequent disasters are from floods which are normally triggered by typhoons, tropical depressions, and continuous heavy rains (Disaster Risk Reduction and Management in the Philippines, 2014). As such, the country's micro, small, and medium enterprises (MSMEs) are among the most vulnerable because of the frequency of these floods (Ballesteros & Domingo, 2015). MSMEs play a crucial role in the national and global economies (A Manual for Public and Private Decision Makers: Bridging the Protection Gap on Natural Catastrophe Insurance for MSMEs in Agriculture and Other Sectors, 2017). Although some MSMEs are quickly able to recover after disasters, most owners still struggle to recover and return to regular business operations as soon as possible (Jimenez & Gozun, 2015). For MSMEs, Ballesteros & Domingo (2015) states that these disasters may compromise the capital, supply chains, product market, and labor of the business, which will ultimately affect its continuity and recovery. As such, Meily (2019, as cited in Government, private sector push for disaster resilient enterprises in the PH, 2019) stressed the importance of disaster-resilient businesses as a survival for the country because of the large contribution these businesses have towards the economy.

Background Factors (BF) Background factors can greatly affect the way people are able to cope with different scenarios. De Souza (2015) explains that demographic trends are important in identifying instabilities in economic factors in such a way that countries that properly identify their demographics are able to increase their resiliency. Organizations are compared by their demographics, as a way of further understanding their resiliency behavior and perception. For instance, the British Standards Institution found that older businesses have a harder time adapting to newer methods and ways of working, which gives them difficulties when reinventing themselves as a means of surviving difficult times (Organizational Resilience Index Report 2017, 2017). The demographic variations present different levels of resilience because these relate to their capabilities, way of thinking, and resources available for use (Organizational Resilience Index Report 2017, 2017).

As a result of the literature gathered in Organizational Resilience, Background Factors, Perceptual Stance, Contextual Integrity, Strategic Capacity, Strategic Acting, and Flooding Experiences, the researchers have formulated the following assumptions: (a) MSMEs in CAMANAVA have experienced heavy flooding while in business operations over the past 15 years; (b) MSMEs in CAMANAVA have qualities of perceptual stance, contextual integrity, strategic capacity, and strategic acting are more likely to be resilient amid adversity; and (c) The level of perceptual stance, contextual integrity, strategic capacity, and strategic acting have varying impact on the dimensions of organization resilience in terms of robustness, redundancy, resourcefulness and rapidity of response to natural

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disaster such as flooding.

Figure 1. Operational Framework (adapted from Jimenez & Gozun, 2015; Kantur & İşeri-Say, 2012; and Foudi, Osés-Eraso & Galarraga, 2017)

3. METHODOLOGY

This quantitative research is an explanatory-causal design, and is cross-sectional in nature and aimed to assess the moderating effects of flooding



experiences and firm characteristics on the relationship of perceptual stance, contextual integrity, strategic capacity, and strategic acting on the organizational resilience dimensions of MSMEs operating in the CAMANAVA region for at least 5 years. The main respondents were the owners/managers of businesses who have experienced flooding within the last 15 years. The CAMANAVA area was also chosen as the locale of the study because the sub-region is among the most disaster-prone areas in Metro Manila and has the reputation of being a flood-prone area due to its location (Why CAMANAVA, n.d.).

The data was gathered with the use of structured, self-administered, questionnaire surveys. However, because of the COVID-19 pandemic, the questionnaires were distributed online, containing the adapted from Background Factors adapted from Jimenez & Gozun (2015), Perceptual Stance, Contextual Integrity, Strategic Capacity, Strategic Acting, and Organizational Resilience (Kantur & İşeri-Say, 2012), and lastly, Flooding Experiences from Foudi, Osés-Eraso & Galarraga (2017). Open-

ended questions were included for flooding experience in order to gain insights from each respondent and to further understand their ratings on each measure of the variable.

The study used descriptive and multivariate analyses to analyze the simultaneous effects of the predictors to several dimensions of organizational resilience. Moderated multiple regression analysis was used to analyze whether the moderating variable, flooding experiences, moderates the relationship between the independent and the set of dependent variables.

4. RESULTS AND DISCUSSION

The descriptive statistics determined that for the background factors, the enterprises have an average of 19.2 number of years established (BF2), and an average of 40 employees (BF3). By type of enterprise (BF4), the majority of the respondents (52) identify themselves as a small enterprise. In terms of business location (BF5), the majority of the respondents (40) operate in Valenzuela City, 29 in Caloocan City, 17 in Malabon City, 12 in Navotas City, and 2 respondents in more than one city. Results also show the overall means wherein perceptual stance (PS), contextual integrity (CI), strategic capacity (SC), strategic acting (SA), were demonstrated to a fairly good extent; flooding experiences (FE) to a moderate extent, and organizational resilience (OR) in the area was high. Table 1 shows organizational resilience area means interpreted to be highest in robustness in all dimensions.

Dimensions of organizational resilience resulted in area means of 1) **Rapidity (M=3.97)** which is the capacity of MSMEs in CAMANAVA to attain organizational priorities on a well-forecasted schedule, 2) **Redundancy (M= 3.67)** which is the existence of excess services performed by an employee demanded by actual requirements of MSMEs in CAMANAVA, 3) **Resourcefulness (M = 4.05)** which is the capacity of MSMEs in CAMANAVA to determine problems and apply allocated human and material resources in coping with adversity, and 4) **Robustness (M=4.13)** which is the ability of MSMEs in

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CAMANAVA to maintain its function despite the existence of adversity.

Table 1 shows results of the multivariate regression with multiple dependent variables for the OR dimensions of robustness (OR-ROB), redundancy (OR-RED), resourcefulness (OR-RES), and rapidity (OR-RAP). The MSME respondents from CAMANAVA found that PS, CI, SC, SA, and FE are significantly affecting OR in terms of robustness, redundancy and resourcefulness with their p values at less than .05 ($p < .05$, $df = 75$). Organizational resilience in terms of rapidity of response to natural disaster is not significantly affected by these variables. Notably, only SA can significantly influence OR-ROB ($p = .016$, $df=18$). The explanatory power of the multivariate model was highest for OR-RES (R squared = .578) or 57.8% of the variation in resourcefulness can be explained by PS, CI, SC, SA, and FE.

Table 1. Multivariate Regression Analysis

Ind. and Mod. Var	DepVar	Adjusted R Squared	df	F	Sig.
	OR-ROB	0.567	75	2.726	.004
PS, CI, SC, SA, FE	OR-RED	0.487	75	2.253	.014
	OR-RES	0.578	75	2.807	.003
	OR-RAP	0.122	75	1.183	.330
SA	OR-ROB		18	2.582	.016

The moderating effect of flooding experiences (FE) on enhancing the relationship of PS, CI, SC, and SA, with OR dimensions is found in Table 2.

With the inclusion of FE as a moderating variable, its interacting effect with PS (FExPS) was only found to be significantly affecting OR-ROB ($p = .032$) and OR-RES ($p=.006$) but not OR-RAP, and

OR-RED. FE was also found to significantly influence OR-RAP ($p=.031$).

With the inclusion of FE as a moderating variable, its interacting effect with CI (FExCI) was only found to be significantly affecting OR-RES ($p=.007$). Both SC and SA have significantly influenced OR-RES at .05 level of significance.

With the inclusion of FE as a moderating variable, its interacting effect with SA (FExSA) was only found to be significantly affecting OR-RES ($p=.013$).

With the inclusion of FE as a moderating variable, its interacting effect with SC (FExSC) was only found to be significantly affecting OR-RES ($p=.013$). FE was also found to significantly influence OR-RES ($p=.034$).

Therefore, across all models in Table 2, the moderating effect of FE on PS, CI, SC, and SA in influencing OR was found to be significant for OR-RES (resourcefulness). The moderating effect of FE on PS was the only one significantly influencing OR-ROB (robustness).

Table 2. Multivariate Moderated Regression Analysis

IND AND MOD VARIABLES	DEP VARIABLES	Adjusted R Squared	df	F	Sig.
	OR-ROB	0.591	87	2.644	.032
PS, CI, SC, SA, FE	OR-RED	0.519	87	2.229	.062
PS x FE	OR-RES	0.718	87	3.890	.006
	OR-RAP	0.302	87	1.491	.225
FE	OR-RAP		1	5.994	.031
	OR-ROB	0.519	90	2.189	.100
PS, CI, SC, SA, FE	OR-RED	0.526	90	2.220	.096
CI x FE	OR-RES	0.775	90	4.793	.007

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	OR-RAP	0.261	90	1.388	.311
SC	OR-RES		19	2.960	.049
SA	OR-RES		18	3.330	.085
<hr/>					
	OR-ROB	0.481	89	2.031	.109
PS, CI, SC, SA, FE	OR-RED	0.444	89	1.889	.135
SA x FE	OR-RES	0.715	89	3.792	.013
	OR-RAP	0.179	89	1.242	.376
<hr/>					
	OR-ROB	0.558	89	2.402	.065
PS, CI, SC, SA, FE	OR-RED	0.144	89	1.187	.411
SC x FE	OR-RES	0.712	89	3.751	.013
	OR-RAP	0.518	89	2.195	.086
FE	OR-RES		1	6.027	.084

5. CONCLUSIONS

Results showed that flooding experiences, as the moderating variable, enhances the relationship between perceptual stance (PS), contextual integrity (CI), strategic capacity (SC), strategic acting (SA) and the organizational resilience dimension of *resourcefulness* of the MSMEs in CAMANAVA. In addition, flooding experiences significantly moderates the relationship between perceptual stance (PS) and organizational resilience dimension of robustness among the MSME respondents in CAMANAVA.

Similarly, flooding experiences as part of the set independent variables of PS, CI, SC and SA exerted direct and significant effect on all dimensions of OR except for OR-rapidity.

The findings also showed that the respondents have experienced flooding to a moderate extent while in business operations over the past 15 years. The persistent flooding experiences plus the MSMEs qualities of perceptual stance, contextual integrity, strategic capacity, and strategic acting have in fact contributed to their organizational resilience. These

are evident in their OR exemplified by resourcefulness (determine problems and apply allocated human and material resources in coping with adversity), redundancy (existence of excess services performed by an employee demanded by actual requirements) and robustness (ability to maintain its function despite the existence of adversity). However, these variables did not significantly contribute to the organizational resilience of rapidity (capacity to attain organizational priorities on a well-forecasted schedule).

Lastly, flooding experiences and PS among MSMEs yielded significant influence on their robustness but not on the other dimensions of OR.

5.1 RECOMMENDATIONS

The absence of organizational resilience dimension of rapidity as significantly affected by the MSMEs qualities of PS, CI, SC and SA, necessitates capacity building among MSMEs to attain organizational priorities on a well-forecasted schedule given that flooding experiences are expected to persist in the future. As such, it is highly recommended for MSMEs in CAMANAVA to (a) ensure that all employees are aware and familiar with the updated plans and protocols of the company so they may confidently act in a quick, correct, timely and effective manner; (b) that meetings be conducted regularly, preferably before the rainy season, in order to give ample time for them to consider all possibilities while preparing everyone for whatever might happen; (c) to further enhance their organizational resilience for rapidity through strategic preparedness, even in situations that do not involve flooding because of how vulnerable MSMEs are to sudden changes in economic activities. As such, resiliency must be given priority to prepare for all possible situations.

For the Local Government Units (LGUs), it is highly recommended that they (a) invest in training and programs that can teach the businesses, especially micro enterprises, how to properly plan for unpredictable circumstances in order to further enhance the overall resilience particularly in the area

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of rapidity and robustness of the community; (b) to further enhance the community engagement of the CAMANAVA area, possibly through the promotion of proper waste management and drainage cleaning programs. These recommendations will allow for the smooth flow and continuous programs of the LGUs, particularly through their efforts of flood gates and a better drainage system in the area.

As for the academe and future researchers, due to the current situation wherein most MSME businesses are coping up with how great this pandemic affected their business operation, it is highly recommended to (a) to consider a qualitative approach to the study, where the researchers may conduct in-depth interviews in order to get a better grasp of their views on the subject to find out more specific factors that affect the relationship between the variables; (b) consider other locations that are plausibly more vulnerable and less resilient with regards to natural calamities; and lastly (c) having more respondents from various industries, so that a larger array of insights and experiences can be discovered.

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7. REFERENCES

A manual for public and private decision makers: Bridging the protection gap on natural catastrophe insurance for MSMEs in agriculture and other sectors (2017).

2019 MSME Statistics (2019). Department of Trade and Industry.

<https://www.dti.gov.ph/resources/msme-statistics/>

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH 2017. Disaster risk reduction in the Philippines: Status report 2019 (2019). UN Office for Disaster Risk Reduction, Regional Office for Asia and the Pacific.

Dixon, P., & Bortolussi, M. (2018). Readers' processing of perceptual perspective and stance. *Discourse Processes*, 1-17. doi:10.1080/0163853x.2018.1512829

Duchek, S. (2019). Organizational resilience: a capability-based conceptualization. *Business Research*. Retrieved from <https://link.springer.com/article/10.1007%2Fs40685-019-0085-7>

Economic Losses, Poverty & Disasters. (2018). Retrieved from https://www.preventionweb.net/files/61119_credeconomiclosses.pdf

Foudi, S., & Osés-Eraso, N. & Galarraga, I. (2017). The effect of flooding on mental health: Lessons learned for building resilience. *Water Resources Research*. 53. doi: 10.1002/2017WR020435.

Government, private sector push for disaster resilient enterprises in the PH (2019). Philippine Disaster Resilience Foundation. Retrieved from <https://www.pdrf.org/media/newsroom/government-privatesector-push-for-disaster-resilient-enterprises-in-ph/>

Jena, L. & Memon, N. (2017). Does workplace flexibility usher innovation? A moderated mediation model on the enablers of innovative workplace behavior. *Global Journal of Flexible Systems Management*. 18. 1-13. doi: 10.1007/s40171-017-0170-8.

Jha, S., Martinez, A., Quising, P., Ardaniel, Z., & Wang, L. (2018). Natural disasters, public spending, and creative destruction: A case study

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- of the Philippines. ADBI Working Paper 817. Tokyo: Asian Development Bank Institute.
- Jung, K. (2017). Sources of organizational resilience for sustainable communities: An institutional collective action perspective. *Sustainability* 9 (7), 1141.
- MSME statistics (2018). Department of Trade and Industry. Retrieved from <https://www1.dti.gov.ph/resources/msmestatistics/>
- Organizational resilience index report 2017 (2017). BSI Group. Retrieved from <https://www.bsigroup.com/LocalFiles/zhtw/organizational-resilience/Index-report-for-web.pdf>
- Samantha, G. (2018). The impact of natural disasters on micro, small and medium enterprises (MSMEs): A case study on 2016 flood event in western Sri Lanka. *Procedia Engineering*, 212, pp.744- 751.
- Salizar, M. & Ludin, S. (2018). Associations between demographic characteristics and resilience factors: A self-report survey. *International Journal of Care Scholars* 2018:1(1).
- Suryaningtyas, D., Sudiro, A., Eka, A.T., & Dodi, W.I. (2019). Organizational resilience and organizational performance: Examining the mediating roles of resilient leadership and organizational culture.

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Will Adoption of Business Continuity Plan Help Cooperatives Recover Quickly from COVID-19 Pandemic? An Empirical Study among Cooperatives in CALABARZON, Philippines

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Abstract: A business continuity plan (BCP) helps organizations ensure continuity in their operations and facilitates rescue, recovery, rebuilding, and rehabilitation of their resources and processes before, during, and after disasters. It serves as a tool that can be used to lessen the negative impacts of natural and artificial risks and hazards like the COVID-19 pandemic on the lives, assets, and livelihoods of individuals and organizations. The study aimed to assess the relationship between BCP adoption and the recovery period from the pandemic among cooperatives in CALABARZON, Philippines. Primary data was collected from 77 cooperatives using semi-structured questionnaires. Socio-demographic data were analyzed using descriptive statistics while an ordered logit regression model was used to assess the factors that contribute to a faster recovery of cooperatives from COVID-19. Results showed that cooperatives who were only aware of the business continuity plan, faced financial and labor issues during the pandemic, members of secondary cooperatives, and had operated longer had lower odds of recovering faster. Conversely, cooperatives who already adopted business continuity plans had more employees and classified as small cooperatives had greater odds of making a faster recovery. The study recommended the promotion of business continuity planning through capacity-building activities, incentive programs, and private-public-academe-cooperative linkages and partnerships.

Key Words: business continuity plan, cooperatives, COVID-19 pandemic

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Parallel Session B: Organizational Resilience B

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Agribusiness SME capabilities building resilient responses amid challenges brought by the COVID-19 pandemic

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Abstract: Grippled by one of the longest and most stringent lockdowns in the world, Philippine businesses suffered unprecedented challenges unleashed by the COVID-19 pandemic. The pandemic exposed the vulnerabilities of businesses where only the resilient survived and thrived. This study provides an empirical understanding of business model innovation, implementation and change that shed light on businesses' portfolio of capabilities which allow them to build and develop resilience and prepare them for the next normal. The study attempts to answer the research question "How do agribusiness SMEs build resilience in the face of COVID-19 pandemic?"

The study covers qualitative case applications of selected agribusinesses that survived and thrived during the COVID-19 pandemic. Secondary data were derived from the CEOs/owners' presentations at the CEM-UPLB Webinar Series 2020. Using thematic analysis, the authors analyzed the SMEs' Covid-19 pandemic actions and responses and their associated capabilities that consequently developed organizations' resilience.

Based on the investigation, all the case subjects were found highly vulnerable to the pandemic which threatened their business survival. The case subjects demonstrated a portfolio of capabilities as shown by their ability to innovate their business model, implement drastic changes throughout the organization, and forge strategic partnerships with institutions and communities.

The resilience conceptualization of Manfield and Newey (2018) finds empirical support in this study where the authors argue that a portfolio of organizational capabilities in the face of uncertain, unfamiliar, complex and severe threats, such as the COVID-19 pandemic, build and develop resilience into the organization's fundamental business model.

Key Words: resilience; capabilities; response; COVID-19 pandemic; agribusiness SMEs

1. INTRODUCTION

The COVID-19 pandemic has created unprecedented challenges and adverse effects to businesses and the society. To slow down the spread of the virus, governments have imposed lockdowns and physical contact restrictions which have presented enormous pressure on communities and businesses to adapt to such situations. These

restrictions have severely impacted businesses. Access to physical infrastructure and shops has been restricted. As people are confined in their homes, many businesses could not generate enough profits due to lack of customers. Businesses are forced to conduct their operations online, and people are to work from home (Sakurai and Chughtai, 2020). As a result, many businesses have even ceased their operations (Bartike et.al., 2020).

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Resilience is usually the term used to describe the ability to prepare, respond, cope and adapt to disturbances in the environment (Williams et.al., 2017; Weick and Sutcliffe, 2015; Vogus and Sutcliffe, 2007). The resilience literature has generated various research streams that investigate the resource capabilities, pre-event resilience, during and post-event responses, and learning from the disruptive events (Williams et.al. 2017). Resource capabilities include financial, cognitive, relational or social capabilities (Williams et.al. 2017). Pre-event resilience includes preparation and anticipation activities by ensuring preventive measures include inter and intra-organisational coordination (Van der Vegt et.al., 2015). Resilience also includes mitigation to absorb the impact and maintain functioning despite the disruptions (Weick and Sutcliffe, 2007). Learning from the disruptive event through feedback mechanisms is also vital in building resilience for future disruptions (Williams et.al. 2017). Interestingly, empirical studies on the various response mechanisms to the COVID-19 pandemic are still lacking in the resilience literature.

Resilience has been studied in various levels and different contexts (Linnenluecke 2017). At the individual level, resilience is studied as the resilience of the entrepreneur or the individual employees (Martinelli et.al. 2018; Branicki et.al. 2018), at the organization or firm level (Lengnick-Hall et.al. 2011; Gittel et.al. 2006) and at the systems level (Williams et.al 2019; Linnenluecke et.al. 2013). The resilience concept has also been applied to various contexts such as in high-reliability organizations (HROs) (deBruijne et.al. 2010), large firms (Meyer 1982), occupational incidents (Weick 1993), natural disasters (Jiang et.al. 2019; Linnenluecke et.al. 2013), and recently, in the COVID-19 pandemic (Rapaccini et.al. 2020; Sakurai & Chughtai, 2020; Floetgen et.al. 2021). In the context of the COVID-19 pandemic, scholars suggest businesses to have general resilience thinking, adaptability and community engagement (Sakurai and Chughtai, 2020), preparedness, agility, elasticity and redundancy (Rapaccini et.al. 2020). However, it is still not clear how these constructs are demonstrated through the actual responses of the businesses in the context of the COVID-19 pandemic.

Recognizing the importance of developing resilience, frameworks have been generated in the literature (Lengnick-Hall et.al. 2011; Limnios et.al. 2014; Burnard et.al. 2018; Vargo and Seville, 2011; Jiang et.al.2019; Manfield and Newey, 2018). From

these frameworks, it is by Manfield and Newey (2018) that explicitly explains how a specific threat and disorganization (impact on the business) profile requires a portfolio of capabilities, can be operational or dynamic capabilities (Helfat and Peteraf, 2003), as a response mechanism depending on these threats and disorganization profile. Their framework also illustrates the different responses and resilience outcomes depending on the availability of slack resources (Manfield and Newey, 2018).

This study aimed to answer the research question: "How do agribusiness SMEs build resilience in the face of COVID-19 pandemic?" The next section presents the methodology of the study. Section 3 discusses analyses and findings. Section 4 concludes.

2. METHODOLOGY

2.1 Framework

We build on the resilience framework of Manfield and Newey (2018) to illustrate how businesses with limited slack resources are able to absorb the impact of a serious and complex disruptive event (COVID-19 pandemic), respond through a portfolio of capabilities and are able to achieve their resilience outcomes. We present cases of agribusiness SMEs in the face of the COVID-19 pandemic that utilized their capabilities as a response mechanism to address the impact of the threat and are able to achieve their corresponding resilience outcomes. We do this by describing the impact of the COVID-19 on these businesses, then describe their response mechanisms and capabilities, and how these helped them continue their operations and thrive despite the pandemic.

We build on the existing resilience framework which embraces the assumption that resilience is a process which depends on the threat profile, and that its development is a deliberate learning process forming capabilities that steer different resilience outcomes (Manfield and Newey 2018). Further, resilience development depends on the availability of and access to slack resources (Manfield and Newey, 2018).

2.2 Data

The study reviewed salient literature and published papers related to COVID-19 pandemic further elaborated through cases of agribusiness SMEs who thrived and succeeded in the face of the COVID-19 crisis. The main source of information is

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the transcribed narratives of the SME executives obtained from the University of the Philippines Los Banos - College of Economics and Management (UPLB-CEM) Webinar Series in 2020. Archival data that include company websites, business reports or articles and other materials produced by the SMEs were used. Follow-up interviews and emails will also be used for future development.

2.3 Thematic Analysis

From the content of the presentations of the managers of the selected agriculture SMEs and guided by the resilience framework discussed previously, the authors derived the themes. Thematic analysis is defined as “a method for identifying, analyzing and reporting patterns (themes) within data” (Braun and Clarke, 2006, p.79 as cited in Flick, 2018). A six step guide was provided by Braun and Clarke (2006, pp.87-93), as cited by Flick (2018). The steps are as follows. First, familiarize with the data by focusing on the transcript and reading them. Second, generate initial codes (themes) from the transcript. Third, search the codes (themes), sort and collate the data extracts according to the themes. Fourth, review the themes to lead into visual representations of the themes and their links. Fifth, define and name the themes. Sixth, produce the report.

3. RESULTS AND DISCUSSION

The impact of COVID-19 on the business activities of the agribusiness SMEs demanded significant efforts from their pandemic responses. In this study, the qualitative analysis focused on two main themes: (1) threat and disorganization, (2) portfolio of capabilities, and responses to collectively explain firm resilience in the context of COVID-19 pandemic. Two (initial) agribusiness SME cases namely 1Export and Zagana comprise the case discussions.

3.1 Case Overview

Case A (1Export Trade and Services) uses an online platform which assists small and medium businesses to become compliant to international requirements and find buyers so they can sell to the international market. It currently connects with 3,500 MSMEs and farming communities to 200 stores in Qatar, Taiwan, Israel and Australia. The services

offered are documentation, international compliance, labelling, logistics and business matching. It uses data analytics to make exporting and trade more efficient. Aside from this, it has won numerous awards in competitions in San Francisco, Jakarta, Manila, among others.

Case B (Zagana) operates an online platform for fresh fruits, vegetables, livestock, poultry and seafood from farmers, fisherfolk and other local producers in the Philippines. The company sees itself as a social enterprise that aims to uplift the lives of Filipino farmers and producers and give consumers an access to safe and healthy food, and deliver high quality and guaranteed fresh produce from farm to kitchen.

Table 1 summarizes the profile of agribusiness SME cases.

3.2 Threat and Disorganization

Organizations behave differently during disruptions. While some fail, others thrive and few succeed. Even in the era of COVID-19 pandemic, amid uncertainty and challenges may rise opportunities which some enterprises even at the wake of crises are able to capitalize on. Those who are able to do so have acquired resilience capabilities that allowed them to counter challenges with business strategies.

Based on the threat dimensions described by Manfield and Newey (2018), the COVID-19 pandemic may be explained in terms of severity, complexity, frequency, catalytic effect and familiarity.

Table 1. Profile of Agribusiness SMEs

SME	1Export	Zagana
Line of business	Consolidator; Export e-commerce; consulting	Consolidator; Order processing and fulfillment
HQ country	Philippines	Philippines
Markets	USA Qatar Singapore Taiwan Israel	Metro Manila, Philippines
Year	2016	2019

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Age bracket of Founder	20-30	20-30
Main response to the pandemic	Digitalization to enable staff to adapt	Flexibility; digitalization to cater customers

In terms of severity, the COVID-19 pandemic caused severe shock to all enterprises across industries in the Philippines resulting from imposed lockdown measures to address the health crisis. After the quarantine implementation, two thirds of firms ceased business activities with those who continued having to cut their operations in half. Smaller firms were more susceptible to closure and 50% of the most hit businesses were from the National Capital Region (ADB, 2020). In terms of complexity, the International Trade Centre (ITC) Business Impact Survey in coordination with the Department of Trade and Industry (2020) confirmed that 99% businesses were affected by the pandemic and 68% were strongly affected.

The longitudinal impact of the COVID-19 pandemic resulting from multiple lockdowns and unending health crisis restrictions led to compounding effects on industries and supply chains confirming a significant ripple effect catalysis. Though challenges were unprecedented, the only difference associated with the cases under study is their familiarity with the threat characterized by their ability to handle the situation emerging from their capabilities, responses and performance.

The COVID-19 pandemic placed 1Export and Zagana, among other businesses, in a context where they needed to operate in the middle of lockdowns and stay-at-home orders. For 1Export, the pandemic caused massive disruptions in its supply chain operations. The SME was affected because the shipping ports had to close due to porters getting sick. The main roads where their trucking and other logistics would pass were also closed due to community quarantines, and suppliers experienced panic (McCullagh, 2020). One of its top employees also expressed concern about 1Export's future and its unreadiness to adapt (McCullagh, 2020). Zagana was also severely affected on the demand side as its primary customers, the hospitality and food service businesses, were ordered to suspend their operations or continue to operate at minimum capacity. Moreover, employees were directed by the national government to work from home.

3.3. Portfolio of Resilience Capabilities

The portfolio of capabilities that were demonstrated by the selected agribusiness SMEs in the face of the COVID-19 pandemic includes technological, anticipation, behavioral and relational capabilities.

Technological Capability

The cases demonstrated their technological capability. This is their capacity to generate, implement or manage technological changes (Bustinza et.al. 2016). As exporting is a complicated process, Case A (1Export) was able to demonstrate their technological capabilities particularly in the process of obtaining export orders, documentation, labeling, order processing, delivery, payment and market insight. They also had to learn and use online platforms for meetings.

"Exporting is a complicated process. ... we look at particular detail from export sales, documentation, labeling, order processing, delivery, payment, and market insight." (1Export)

"We had onboarding meetings just how to use Google Meet, how to use Trello boards, make and keep digital notes. It was a complete acceleration of technology adaptation and as the processes become clearer." (1Export)

Zagana's traditional e-commerce business-to-business (B2B) platform was overwhelmed with the sudden demand from individual households resulting in poor service delivery and a barrage of customer complaints.

"So we're online to different platforms we are in Grabmart, Food panda, Lazada, Shopee, Community mart, Pic.A.Roo, and we have our own zagana.com. So we are a multi-platform channel. We have our own system that we have built in house "... And when ECQ happened, we just put up our sites. It was easy to put up a site. We open up Shopify, it took us just 3-4 hours to put it online and we have our online shop." (Zagana)

Anticipation capability

Anticipation refers to the ability to detect changes in the environment and see the unexpected faster than others (Duchek, 2020). Further, this capability enables the system to minimize potential consequences (Duchek, 2020). Case A (1Export) indicated that they are able to anticipate changes in the regulatory environment in terms of health requirements on manpower.

"We have to expect, there will be stricter health requirements...But we have to expect stricter rules and regulations to be implemented moving forward... You expect them to implement stricter health requirements on manpower." (1Export)

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The selected case indicated the ability to anticipate the market demand outlook. Case A (1Export) anticipated that prices of perishable goods have stabilized due to the increase of market players, increased demand for home goods and that this will be done through online channels, and for health products. Anticipation capabilities also include the ability to recognize and identify early signals of threats to respond quickly (Duchek, 2020). Case A (1Export) foresaw potential threat due to the changes in the cost structure.

Behavioral capability

This capability involves the action alternatives that "are often embedded in their design of an organization which facilitate the processing and sharing of information and work tasks" (Williams et.al. 2017, p.744). This capability was demonstrated in the flexibility in decision-making by the selected cases. The employees of Case A were able to shift to working remotely as they used online platforms such as Google Meet, Trello, Jandi, and Remember the Milk. The selected case (Zagana) was able to abruptly shift their market from businesses (hotels and restaurants) to individual consumers.

"And when ECQ happened, we just put up our sites. It was easy to put up a site. We opened up Shopify, it took us just 3-4 hours to put it online and we have our online shop. So overnight from being traditional to going digital and getting thousands of orders was something we could not imagine." (Zagana)

Relational capability

Relational capability pertains to the ability to tap social connections in order to gain access to or exchange resources in the face of adversity (Williams et.al. 2017). This capability pertains to partnering with public institutions or private firms. For example, 1Export is said to be partnering with OneStore.ph, an ecommerce platform for sellers in the Philippines and is hosted by the Department of Science and Technology (DOST) Region 2. In addition to its business partners (MSMEs), 1Export partners with private banks such as the Wells Fargo and Chase Bank (1Export.com). Zagana has also partnered with the Department of Agriculture (DA), Department of Trade and Industry (DTI), as well as United States Agency for International Development (USAID) to help in their logistics needs. In addition, Zagana partnered with Grab, a company that offers food delivery and digital payments services via mobile app.

3.4. Response / business strategies

The responses through business strategies that were enacted by the selected agribusiness SMEs are supply chain integration, e-commerce, change in work design and HR management, health and safety measures, and diversification of marketing channels.

E-commerce

The cases' internal processing that included order processing and fulfillment, as well as their marketing activities are digitalized.

Diversification of market channels

The cases considered additional or even a shift in their market channels. Case A (1Export) initially was selling to distributors only, but due to the pandemic, they added institutions as their buyers. Zagana was initially doing B2B, but shifted to business-to-consumers (B2C).

"Initially we targeted B2B distribution, B2B distributors so we were selling to wholesalers and retailers particularly in Australia, US... We didn't consider institutions, but now we are. We are looking at supplying to hospitals PPEs to get in the States." (1Export)

Work design and HR Management

Case A (1Export) notes its decision to digitally transform in terms of work activities, switched to cloud based storage to facilitate work from home arrangements in addition to staggered work day and shifting schedule. Zagana on the other hand, made sure that their staff would not be let go. They even had to hire more people. Moreover, 1Export implemented added protection to their employees by providing insurance and providing transportation schemes especially during lockdowns

Public-private partnerships

Zagana partners with the DA, DTI and USAID, while 1Export partners with the DOST.

3.5. Resilience Outcomes

SMEs developed resilience amid pandemic through networking, digitalization and organized logistics. Both Zagana and 1export not only survived but thrived despite unprecedented challenges brought about by COVID-19 pandemic displaying resilience amid disruptions.

3.6. Analysis/ Discussion

This preliminary results suggest empirical evidence that agribusiness SMEs can develop their

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resilience in the face of the COVID-19 pandemic, an unprecedented threat. The results also suggest that the selected agribusiness SMEs demonstrate their capabilities and respond differently to the same threat. Resilience therefore emerges and develops from the agribusiness SMEs' portfolio of capabilities and responses.

Table 2 presents the cross-case analysis of the agribusiness SMEs in this study.

4. CONCLUSIONS

The threat and disorganization brought about by COVID-19 pandemic characterized by severity, complexity, frequency and catalytic effect necessitated responses in the form of business strategies from agribusiness SMEs to thrive. These responses were generated from the SMEs' portfolio of capabilities that contributed to organizational resilience to swim in wake of challenges and uncertainties. Though faced with similar threats, their varying capabilities elicited different responses.

In terms of technological and behavioral capabilities, both 1Export and Zagana used digitalization as their business strategy. While 1Export has been accustomed to digitalization and ecommerce even before the pandemic, Zagana had to shift its operations overnight to venture into digitalization and ecommerce. The abrupt shift in operations by Zagana resulted to poor customer reviews at the beginning of their implementation which the company was able to improve later on.

Table 2. Thematic Cross-Case Analysis

SME	1Export	Zagana
1. Threat and Disorganization		
	Massive disruptions in the supply chain/logistics due to shipping ports and main roads closures, panic among suppliers and own employees	Consolidator; order processing and fulfillment

2. Portfolio of Resilience Capabilities

Technological capability	Capability to obtain and process of export orders, documentation, labeling, order processing, delivery, payment and market insight; online meetings	Was able to put up an online site within a day
Anticipation capability	Anticipates changes in the regulatory environment in terms of health requirements on manpower, demand for healthy products and home goods.	Lacked the ability to anticipate changes in the market demand
Behavioral capability	Able to shift to working remotely as they used online platforms	The flexibility in decision-making was demonstrated in their abrupt shift of their market from businesses (hotels and restaurants) to individual consumers
Relational capability	In addition to their business clients, the SME partners with government institutions, logistics businesses, private banks	In addition to their business clients, the SME partners with government institutions, logistics businesses

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3. Business Strategies and Responses

E-commerce	Electronic processes that includes order processing and fulfillment, and marketing	Electronic processes that includes order processing and fulfillment, and marketing
Diversification of Market Channels	Added institutions as buyers	From B2B to B2C
HR Management	Flexible work arrangements	Ensured staff have jobs
Public-private partnerships	Partnership with DOST	Partnership with DA, DTI and USAID

1Export was able to anticipate changes in the regulatory environment, whereas Zagana resulted to agile transformation in dealing with the shock from the consumer landscape. 1Export was able to shift to remote work design and cloud storage whereas Zagana capitalized on flexible decision making and fluid networks allowing them to shift their market from institutions to individual consumers.

The capabilities explored in this study stem from the entrepreneurial experiences, background, advocacies, network and technological mindset that worked hand in hand to develop the necessary responses to thrive amid disruptive circumstances. Through digitalization and ecommerce, the agribusiness SMEs responded to the mobility challenges and demand opportunities with B2B and B2C short supply chains connecting digital platforms with organized logistics both domestically and abroad.

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6. REFERENCES

- 1Export. (n.d.). We help businesses go global. Retrieved from <https://1export.net/>
- Bartik, A. W., Bertrand, M., Cullen, Z., Glaeser, E. L., Luca, M., & Stanton, C. (2020). The impact of COVID-19 on small business outcomes and expectations. *Proceedings of the National Academy of Sciences*, *117*(30), 17656-17666. doi:10.1073/pnas.2006991117
- Branicki, L. J., Sullivan-Taylor, B., & Livschitz, S. R. (2018). How entrepreneurial resilience generates resilient SMEs. *International Journal of Entrepreneurial Behaviour & Research*, *24*(7), 1244-1263. <http://dx.doi.org/10.1108/IJEER-11-2016-0396>
- Burnard, K., & Bhamra, R. (2011). Organisational resilience: development of a conceptual framework for organisational responses. *International Journal of Production Research*, *49*(18), 5581-5599. doi:10.1080/00207543.2011.563827
- Bustinza, O. F., Vendrell-Herrero, F., Perez-Arostegui, M. N., & Parry, G. (2019). Technological capabilities, resilience capabilities and organizational effectiveness. *The International Journal of Human Resource Management*, *30*(8), 1370-1392. doi:10.1080/09585192.2016.1216878
- College of Economics and Management-University of the Philippines Los Banos (Producer) (2020). *CEM Webinar Series: Agribusiness innovations in the time of COVID-19* [video] <https://www.facebook.com/watch/live/?v=427814761436297&ref=search>
- deBruijne, M., Boin, A., & vanEeten, M. (2010). Resilience: Exploring the concept and its meanings. In L. Comfort, B. A., & C. Demchak (Eds.), *Designing Resilience* (pp. 13-32). University of Pittsburgh: University of Pittsburgh Press.
- Duchek, S. (2020). Organizational resilience: a capability-based conceptualization. *Business*

2021 ASEAN UNIVERSITY NETWORK BUSINESS AND ECONOMICS VIRTUAL CONFERENCE

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- Research*, 13, 215-246.
<https://doi.org/10.1007/s40685-019-0085-7>
- Floetgen, R. J., Strauss, J., Weking, J., Hein, A., Urmetzer, F., Böhm, M., & Krcmar, H. (2021). Introducing platform ecosystem resilience: leveraging mobility platforms and their ecosystems for the new normal during COVID-19. *European Journal of Information Systems*, 1-18. doi:10.1080/0960085X.2021.1884009
- Gittell, J. H., Cameron, K., Lim, S., & Rivas, V. (2006). Relationships, Layoffs, and Organizational Resilience: Airline Industry Responses to September 11. *The Journal of Applied Behavioral Science*, 42(3), 300-329. doi:10.1177/0021886306286466
- Helfat, C. E., & Peteraf, M. A. (2003). The Dynamic Resource-Based View: Capability Lifecycles. *Strategic Management Journal*, 24(10), 997-1010. Retrieved from <http://www.jstor.org.ezproxy.library.uq.edu.au/stable/20060594>
- Jiang, Y., Ritchie, B. W., & Verreynne, M.-L. (2019). Building tourism organizational resilience to crises and disasters: A dynamic capabilities view. *International Journal of Tourism Research*, 21(6), 882-900. doi:10.1002/jtr.2312
- Lengnick-Hall, C. A., Beck, T. E., & Lengnick-Hall, M. L. (2011). Developing a capacity for organizational resilience through strategic human resource management. *Human Resource Management Review*, 21(3), 243-255. <https://doi.org/10.1016/j.hrmr.2010.07.001>
- Limnios, M., Alexandra, E., Mazzarol, T., Ghadouani, A., & Schilizzi, S. G. M. (2014). The Resilience Architecture Framework: Four organizational archetypes. *European Management Journal*, 32(1), 104-116. <https://doi.org/10.1016/j.emj.2012.11.007>
- Linnenluecke, M. K. (2017). Resilience in Business and Management Research: A Review of Influential Publications and a Research Agenda. *International Journal of Management Reviews*, 19(1), 4-30. <https://doi.org/10.1111/ijmr.12076>
- Linnenluecke, M. K., & Griffiths, A. (2013). The 2009 Victorian Bushfires: A Multilevel Perspective on Organizational Risk and Resilience. *Organization & Environment*, 26(4), 386-411. doi:10.1177/1086026613508126
- Martinelli, E., Tagliacuzzi, G., & Marchi, G. (2018). The resilient retail entrepreneur: dynamic capabilities for facing natural disasters. *International Journal of Entrepreneurial Behaviour & Research*, 24(7), 1222-1243. doi:<http://dx.doi.org/10.1108/IJEER-11-2016-0386>
- Meyer, A. D. (1982). Adapting to Environmental Jolts. *Administrative Science Quarterly*, 27(4), 515-537.
- Rapaccini, M., Saccani, N., Kowalkowski, C., Paiola, M., & Adrodegari, F. (2020). Navigating disruptive crises through service-led growth: The impact of COVID-19 on Italian manufacturing firms. *Industrial Marketing Management*, 88, 225-237. <https://doi.org/10.1016/j.indmarman.2020.05.017>
- Sakurai, M., & Chughtai, H. (2020). Resilience against crises: COVID-19 and lessons from natural disasters. *European Journal of Information Systems*, 29(5), 585-594. doi:10.1080/0960085X.2020.1814171
- Van der Vegt, G. S., Essens, P., Wahlström, M., & George, G. (2015). Managing Risk and Resilience. *Academy of Management Journal*, 58(4), 971-980. doi:10.5465/amj.2015.4004
- Vargo, J., & Seville, E. (2011). Crisis strategic planning for SMEs: finding the silver lining. *International Journal of Production Research*, 49(18), 5619-5635. doi:10.1080/00207543.2011.563902

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April 16, 2021



Conference theme: "Enabling the Transformation of Resilient Business Environment and Innovation Ecosystem in the ASEAN"

Vogus, T. J., & Sutcliffe, K. M. (2007, 7-10 Oct. 2007). *Organizational resilience: Towards a theory and research agenda*. Paper presented at the 2007 IEEE International Conference on Systems, Man and Cybernetics.

Weick, K. E. (1993). The collapse of sensemaking in organizations: The Mann Gulch Disaster. *Administrative Science Quarterly*, *38*(4), 628-625.

Weick, K. E., & Sutcliffe, K. M. (2015). Mismanaging the Unexpected. In *Managing the Unexpected* (pp. 1-20).

Williams, T., Gruber, D., Sutcliffe, K., Shepherd, D., & Zhao, E. (2017). Organizational response to adversity: Fusing crisis management and resilience research streams. *Academy of Management Annals*, *11*(2), 733-769. doi:10.5465/annals.2015.0134

Zagana. (2019). About Zagana. Retrieved from <https://www.zagana.com/ContentPage/about>

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Cross-Sector Partnerships for Social Enterprise Sustainability as a Post-Disaster Recovery Strategy: Implications for Business Resilience Amid the Pandemic

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Abstract: This study develops a framework for understanding the relational dynamics and power asymmetries among macro, meso and micro stakeholders involved in the formation, development, and sustainability of social enterprise as a post-disaster recovery strategy. The framework also presents the key success factors to the sustainability of social enterprises. While the study is in the context of Typhoon Haiyan, it can nevertheless offer valuable insights for post-pandemic recovery. Using an exploratory sequential mixed-method design, qualitative data were gathered from 40 key informant interviews with a post-disaster recovery project's macro and meso stakeholders and 14 FGD sessions with the project's social enterprise-beneficiaries. A survey was also conducted among 215 randomly-selected beneficiaries representing 62 social enterprises from eight (8) municipalities in Leyte and Eastern Samar, Philippines. The cross-sector partnerships can be characterized as having complex and fragmented relational dynamics and power asymmetries due to the lack of communication and coordination among and between the macro (i.e., GAC-CECI CONCERN Inc. and OPARR) and meso (e.g., regional, provincial, and municipal agencies, organizations and LGUs) stakeholders. Factors related to the sustainability of social enterprises were also identified. At the meso level, these were: local policies, political environment, and the leadership and governance and individual characteristics of the LGU executives. On the other hand, at the individual beneficiary micro level, the significant factors were sex (female), educational attainment, total monthly income and the income increase from the project grant. Meanwhile, at the social enterprise micro level, the critical factors were cooperative structure, LGU registration, number of products sold and marketed, sufficiency of capital, relationship with the LGU, and perceptions and attitudes of a social enterprise.

Key Words: cross-sector partnerships; mixed-method approach; post-disaster framework; social enterprise; Typhoon Haiyan

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1. INTRODUCTION

Abating the impacts of disaster is among the biggest challenge humanity faces in this century. In particular, there is the need to develop and implement strategies towards post-disaster recovery. There is a growing volume of evidence suggesting that in many recovery and rehabilitation situations, the most successful and cost-effective actions are those that protect people from the impacts of disaster by ensuring high levels of resilience, personal empowerment and adaptive capacity to counter the threats posed by the disaster to both lives and livelihoods (Babiak and Thibult, 2009; Collins, 2009; Nolte and Boegnack, 2011; Meduri, Y. 2016; Mojtahedi and Bee Lan Oo, 2017).

Like any disaster, the Covid-19 pandemic has created an unprecedented impact to humanity which affected lives and livelihoods as more business and economic systems have been disrupted due to hard lockdowns. The fragility of many nations' state of affairs particularly in developing countries like the Philippines are becoming more pronounced amid disasters. Consequently, the recovery process from the pandemic can be viewed with less optimism and may take longer than expected as compared with other disasters. The response to build back after the pandemic requires more effective strategic options which in turn will necessitate the serious involvement of people and their communities for faster response. Social enterprises, with its mission-driven character, can serve as a venue for faster resource mobilization in the community. This can result in the building up of resilience among local businesses which can become the foundation of a local community's economic system. The role of cross-sector partnerships amid this recovery challenge is much more needed than any period in the country's history. The formation, development, and sustainability of social enterprises needed for economic recovery can be either achieved or deterred by the nature of the cross-sector partnerships among and between macro, meso and micro stakeholders. Thus, this study aims to examine the relational dynamics and power asymmetries among the different stakeholders involved in the formation, development, and sustainability of social enterprise as a post-disaster recovery strategy. It also intends to identify the key success factors to the sustainability of social enterprises.

2. METHODOLOGY

2.1 Research Design

Exploratory Sequential Mixed Method Design

The research adopted an exploratory sequential mixed method approach. *This study employed a constructivist paradigm. Under the paradigm, the knowledge generation process takes place through an exploration of other people's ideas and how they look at life (Creswell and Plano Clark, 2011).*

The study examines the partnership of an international non-government organization (INGO) with a Philippine-based non government organization (NGO) – the CECI-CONCERN, Inc. involved in a disaster recovery project, the Tukod project. The nonprofit-public-civil society partnerships assisted Leyte and Eastern Samar provinces – two among those assessed to be the most hard-hit and devastated areas in the Philippines during the post-typhoon Haiyan/Yolanda recovery process. Funded by the Government of Canada (GAC) and implemented by CECI-CONCERN, Inc., the Tukod project assisted marginalized men and women across three (3) provinces in eight (8) municipalities in Leyte (i.e., Tacloban, Palo and Tolosa); Eastern Samar (i.e., Dolores, Taft, Can-Avid and Oras); and Western Samar (i.e., Marabut).

Data for the qualitative research was gathered mainly from 40 key informant interviews (KIIs) and 14 focus group discussions (FGDs). These data collection methods gathered perspectives from the network partners, government agencies, community and the beneficiaries. Meanwhile, the survey research was conducted among 215 randomly-selected organizational and individual beneficiaries representing 62 social enterprises based in the eight (8) municipalities. Published and unpublished organization documents and desktop reports based on government reports on Typhoon Haiyan/Yolanda recovery efforts were also gathered.

3. RESULTS AND DISCUSSION

The qualitative phase examined the role in the formation, development, and sustainability of social enterprises of cross-sector partnerships between the

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nonprofit-public-civil society sectors. The nature of cross-sector partnerships was found to be framed by the mandated laws and existing disaster risk reduction and management frameworks. This led to relational dynamics and power asymmetries which can be described as complex and fragmented due to the number of projects implemented for recovery and rehabilitation which involved multi-stakeholders affecting management of the partnerships. The lack of communication and coordination among and between the macro (i.e., Global Affairs Canada-CECI-CONCERN, Inc. and Office of the Presidential Assistant for Recovery and Reconstruction - OPARR) and meso (e.g., regional, provincial, and municipal agencies, organizations and LGUs) stakeholders. Between the international non-government organization (CECI-CONCERN, Inc.) and OPARR, it was analyzed that there was a power asymmetry issues. CECI-CONCERN, Inc. preferred to deal directly with the regional agencies as OPARR, from the perspective of the former, seemed unable to lead the recovery process effectively. On the other hand, stakeholders at the meso level, specifically among the regional and provincial offices, claimed that there were fragmented efforts between key players to support the recovery. This was attributed to the Regional Development Council (RDC) (composed of representatives from the regional and provincial government offices) and its technical working group not performing its functions. As a result, CECI-CONCERN decided to proceed with its planned activities, even without direct engagement with the national government.

In relation to CECI-CONCERN, Inc. and its relational dynamics with the LGU executives, the former felt that there were times they were not welcome. The LGU executives however countered that they had become preoccupied with accommodating quite a number of INGOs which expressed their interest to extend assistance. They therefore just selected the INGOs which they perceived as offering value-adding projects.

The relational dynamics and power asymmetries existing within cross-sector partnerships have affected the recovery project, both favorably and unfavorably, and has affected the socio-economic of the social enterprises formed under the Tukod project. The cross-sector partnership inputs which were identified to contribute to social enterprise sustainability were communication, coordination, and leadership and governance at the macro, meso and

micro levels. Communication emerged as an integral input, coordination and collaboration as critical components, and leadership and governance as salient ingredients to social enterprise sustainability. This categorization was derived from a meta-inferencing conducted where the inputs generated from the qualitative phase of the study (i.e., KIIs and FGDs) were validated during the quantitative phase (i.e., survey among the beneficiaries) of the study. The other crucial factors which were identified to social enterprise sustainability from the qualitative phase of the study were: local policies, political partisanship, local leadership, and individual characteristics of the LGU executives.

From the quantitative phase, it was revealed that most of the beneficiaries were marginalized women. An analysis of the impact of the project showed an increase in income among the beneficiaries, both among operational and non-operational social enterprises (Figure 1 and Table 1). The income increase was consistently noted among beneficiaries in urban and rural areas (Figure 2) as well as across the provinces of Leyte, Eastern Samar and Western Samar (Figure 3). Despite the incremental increase being minimal, the beneficiaries claimed that this addition to income was used for the basic needs of many households recovering from the typhoon devastation.

Another economic impact of the social enterprises formed was that of the utilization of local resources in the communities. The project thus brought about multiplier effects in the community in the form of additional sources of income for the other constituents.

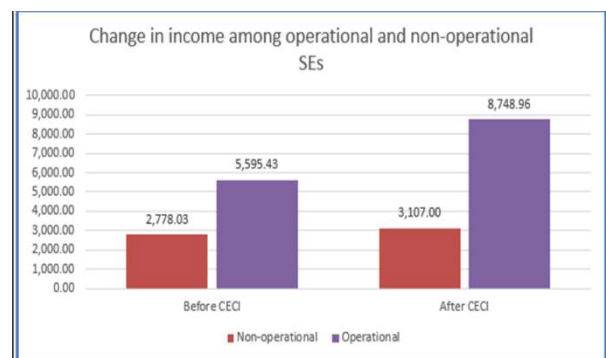


Fig. 1. Income changes of project beneficiaries involved with social enterprises

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Table 1. Summary of statistics on the comparative change in income before and after CECI-CONCERN, Inc. among operational and non-operational social enterprises (SE's)

Statistical Tests	Non-operational social enterprises		Operational Social Enterprises	
	Before CECI	After CECI	Before CECI	After CECI
Descriptive Statistics				
Valid N	16	15	141	140
Mean	2,778.03	3,107.00	5,595.43	8,748.96
Test Statistics				
Mann-Whitney U	667.500		427.000	
Wilcoxon W	803.500		547.000	
Z	-2.681		-3.778	
Asymp. Sig. (2-tailed)	.007		.000	

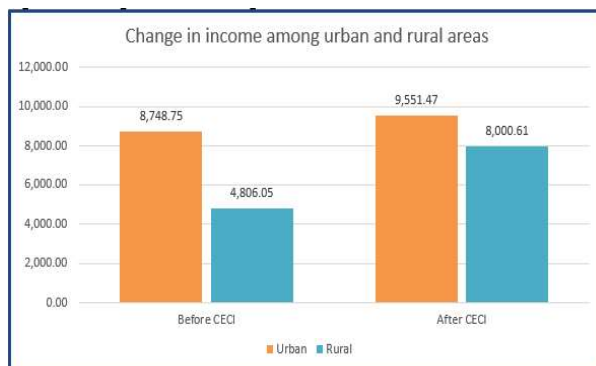


Fig. 2 Change in income among urban and rural areas

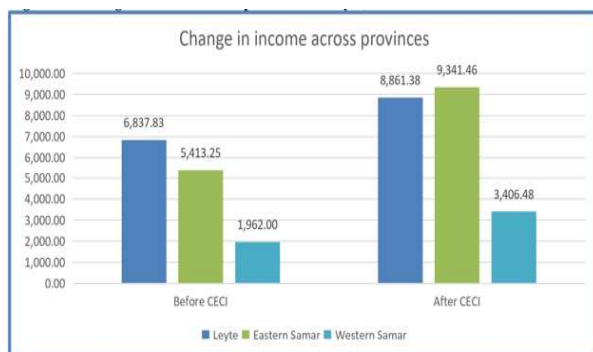


Fig. 3. Change in income across provinces of Leyte, Eastern Samar and Western Samar

In terms of the social impact of the social enterprises, it was observed that the women, their households, the communities, and the local organizations became more empowered and resilient. The social enterprises paved the way for leadership and organizational development activities and asset building and educational and experiential learning opportunities. These activities and opportunities empowered the poor to become conscious stakeholders in overcoming their poverty situation and partners in pursuing change in their community/sector and society as a whole.

Women empowerment and gender equality were found to be the most significant positive outcome of the womens' involvement with social enterprises. Their engagement in social enterprises encouraged them to save money together with their husbands. The women also gained confidence in making critical choices for themselves, their children, and their families. The women surveyed expressed their new perspective that their role vis-a-vis their husbands should be more of complementation rather than competition and that a synergistic partnership will likely result to a stronger and more harmonious family life.

The social enterprises played a transactional as well as transformational role towards economic restoration in the Eastern Visayas Region. The transactional role was evident during their formation and development phase, that is the first year. During this period, the social enterprises engaged more in economic activities such as extending credit and marketing products. On the other hand, their transformational role was manifested during their second to fifth year. At this time, the officers were enhancing their entrepreneurial skills such as doing negotiations and assuming leadership positions.

The connecting phase from qualitative and quantitative phases have also the predictors to having sustained social enterprises. At the individual beneficiary level, the demographic variables which were identified to be significant were sex (female), educational attainment, total monthly income and the income increase generated from the project grant. On the other hand, the organizational factors which emerged to be predictors of social enterprise sustainability were form of organization (cooperative), being LGU-registered, number of products sold and

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marketed, sufficiency of capital, relationship with the LGU, and perceptions and attitudes of what a social enterprise is.

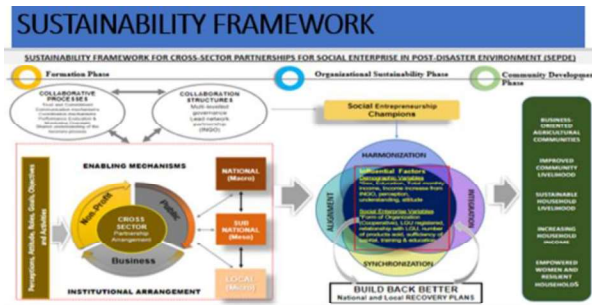


Fig. 4. Sustainability Framework for Cross-Sector Partnerships for Social Enterprise Sustainability in a Post-Disaster Environment (SEPDE).

4. CONCLUSIONS

This study was motivated by the lack of a framework in understanding the dynamics and power asymmetries among macro, meso, and micro stakeholders involved in the formation, development, and sustainability of social enterprises as a post-disaster recovery strategy.

The study revealed who the key players and stakeholders involved in the post-super typhoon Haiyan/Yolanda recovery process and how their relational dynamics facilitated and/or limited the prospect for sustainability of social enterprises towards sustainable development. As mandated in Philippine laws, aid organizations with multi-million investments in projects and programs for recovery efforts need collaborative approaches and strategies with national government agencies to optimize their functions and roles. The complex and dynamic process of cross-sector partnerships inherent in the recovery process needs management to ensure sustainable social enterprises. Effective cross-sector partnerships can build resiliency in business activities at local communities hence relevant to policy discourse and practice.

As a conclusion, the authors propose that social enterprises can be sustainable only if the roles, activities, plans of cross-sector partners in post-disaster recovery are aligned, harmonized, integrated and synchronized.

A **Social Enterprise in a Post-Disaster Environment (SEPDE)** framework is developed (Figure 4). This framework is needed to expedite economic recovery and restore social life after a disaster and works under the assumption that there is a post-traumatic environment as well as an international organization willing to extend assistance. The framework should be clearly understood by all the cross-sector stakeholders involved in disaster risk reduction and management – the INGO, OPARR, government agencies at the national, provincial and municipal levels, LGUs, beneficiaries, public sector, civil society, and the academe.

The SEPDE presents a vulnerable and fragile socio-economic entity (i.e., social enterprise) at its inception and development phase primarily engaged in transactional activities. The social enterprise under SEPDE however is assumed to be an evolving one. From basically a start-up business with a social-driven mission, it will be transformed into a profit-oriented entity which utilizes local resources and which will now focus on its transformational role.

The enabling factors to the transformation of the social enterprises under the framework include communication, collaboration, and leadership and governance mechanisms among and between the macro and meso stakeholders. These factors could be facilitated through the institution of additional provisions in RA 10121 (Disaster Risk Reduction and Management Act of 2010).

Unfortunately, majority of the social enterprises became unsustainable after CECI-CONCERN, Inc. left the Eastern Visayas Region. This outcome could have been different had the SEPDE framework been utilized by the Tukod Project implementors.

The framework can be applied to other disaster contexts, including the Covid-19 pandemic. More than ever, the country needs to have long-term solutions, not stop-gap remedies, to address the adverse economic and social effects of this disaster. Cross-sector partnerships for social enterprise sustainability as a post-disaster recovery strategy could be the long-term solution to the current economic situation, especially in the countryside.

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6. REFERENCES

- Andrews, R. & Entwistle. (2010). Does Cross-Sectoral Partnership Deliver? An Empirical Exploration of Public Service Effectiveness, Efficiency, and Equity. *Journal of Public Administration Research and Theory* 20(3): 679-701.
- Babiak, K.M. and Thibult, L. (2009). Challenges in Multiple Cross-Sector Partnerships. *Nonprofit and Voluntary Sector Quarterly* 38(1): 117-43.
- Bryson, J. M., Crosby, B. C., & Stone, M. M. (2015). Designing and Implementing Cross-Sector Collaborations: Needed and Challenging. *Public Administration Review*, 75(5), 647-663. <https://doi.org/10.1111/puar.12432>.
- Collins, A. (2009). *Disaster and Development*. New York, New York. Routledge.
- Dacanay, M. (2015). Reconstruction Initiative through Social Enterprise: A poverty sector-focused, Post-Yolanda Response in the Philippines. Rise Briefing Conference Proceedings, May 14, 2014.
- Davidsson, P. & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing* 18(3): 301-331.
- Dees, J.G. & Anderson, B. (2006). Framing a theory of social entrepreneurship: building on two schools of practice and thought, research on social entrepreneurship: understanding and contributing to an emerging field: association for research on nonprofit organizations and voluntary action (ARNOVA).
- Gray, B. (2007). The process of partnership construction: anticipating obstacles and enhancing the likelihood of successful partnerships for sustainable development. In Glasbergen P., Biermann, F., & Mol, A.P.S., (Eds). (2007). *Partnerships, Governance and Sustainable Development: Reflections on Theory and Practice*. Great Britain: MPG Books Ltd. Bodmin, Cornwall.
- Mojtahedi, S.M.H. and Oo, B.L. (2014). The impact of stakeholder attributes on performance of disaster recovery projects: The case of transport infrastructure. *International Journal of Project Management*. <http://dx.doi.org/10.1016/i.ijproman.2017.02.006>
- Monllor, J. and Murphy, P. (2017). Natural disaster, entrepreneurship, and creation after destruction: A conceptual approach. *International Journal of Entrepreneurial Behavior and Research*. 23(4): 618-37.
- Nolte, I. M., & Boenigk, S. (2011). Public-Nonprofit Partnership Performance in a Disaster Context: The Case of Haiti. *Public Administration*. 89(4): 1385-1402. <https://doi.org/10.1111/j.1467-9299.2011.01950.x>

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The Weisbord Model and Organizational Culture Assessment Instrument as Tools for Organizational Resilience Assessment: A Pre- and Post- Pandemic Experience

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Abstract: This case analysis presents the pre- and post-pandemic assessment results of Weisbord's Six Box Model organizational diagnosis for Diagnostika, a company operating in the In-Vitro Diagnostics (IVD) industry in the Philippines. The purpose of this study was to determine the organizational alignment of the firm – the “fit between organization and environment and the individual and the organization” (Weisbord, 1976) by comparing the pre- and post-pandemic means of the seven boxes of the Organizational Diagnosis Questionnaire (ODQ) by Preziosi (1980). The study also assessed the impact of the lockdown on the firm's organizational culture using the Organizational Culture Assessment Instrument (OCAI) by Quinn and Cameron (1999). The study focused on how Diagnostika culturally evolved in response to the shocks and disruptive changes consequent to the pandemic that challenged the company's resilience and sustainability. A resilience meta-analysis was done by comparing the post-pandemic results of the ODQ assessment with Diagnostika's OCAI means before the pandemic. The analysis was done with complementary qualitative data from the firm's executive. Furthermore, both assessments from Preziosi's ODQ and Quinn and Cameron's OCAI were tiered between supervisory and non-supervisory functions. This internal analysis also helped identify post-pandemic sources of competitive advantage for Diagnostika, and its areas for improvement as it navigated the perilous sea of change consequent to the lockdown exactly one year ago. The findings became the foci of organizational interventions during the pandemic. By December 2020, Diagnostika reached its annual revenues and income target for the year successfully as a result of its organizational resilience and restructuring efforts during the pandemic.

Key Words: organizational culture; Weisbord model; organizational change; organizational interventions; organizational resilience, pandemic

1. THE CONTEXT – DIAGNOSTIKA AND THE 2020 PANDEMIC CRISIS

The Weisbord Six-Box Model (Weisbord, 1976) was used as a diagnostic framework to evaluate Diagnostika's strategic health through the use of the organizational diagnosis questionnaire (ODQ) as proposed by Preziosi (1980). The lockdown in the

Philippine island of Luzon resulted in the paralysis of key business centers of Metro Manila. These sequential disruptions systematically engaged the firm in virtual and defensive strategies. Consequently, having been forced by drastic political, economic, and environmental external forces, the management mandated shifting to work from home modality. The business model of Diagnostika in the

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Philippines requires impeccable value chain and speed to market operations in providing diagnostics services to hospitals and free-standing clinical laboratories nationwide. The lockdown spawned drastic in-bound and out-bound logistical constraints and stymied all face-to-face operations. Furthermore, the sudden and sharp decline of hospital patients due to fear for SARS-Cov-2 virus plummeted revenues and income of the firm down to alarming levels. It has become imperative to assess the impact of these disruptive phenomena to the firm. Systems theory posits that inputs in an open system organization, which include environment, human and financial resources, and history take and give information from the environment and are merged with organizational strategy to influence its transformational processes (Anderson, 2015; Rothwell, et al., 2016, p.19).

2. PROBLEM STATEMENT AND HYPOTHESES

Considering the drastic effects of the lockdown, did the company's organizational alignment and culture change? This paper raises the issue, "Was there a significant difference in Diagnostika's organizational culture, and organizational alignment between the pre- and post-pandemic periods?"

The study then proposes the following hypotheses:

H1: There is no significant difference in the organizational alignment (ODQ) of Diagnostika between pre- and post-pandemic periods.

H2: There is no significant difference in the organizational culture (OCAI) of Diagnostika between pre- and post-pandemic periods.

3. RESEARCH METHODOLOGY AND SAMPLING

A self-assessment was conducted using the structured Organizational Diagnosis Questionnaire (ODQ) by Preziosi (1980) to diagnose the fit between the organization and environment and individual and the organization. The questionnaire was run through Google docs and all employees nationwide were instructed to answer the questions online. A total of 111 usable responses were obtained. Weisbord was used as a model because it is simple to visualize,

uncomplicated to interpret, easier to process, and reflects the relevant concepts of the operations and management of Diagnostika during the pandemic (Preziosi, 1980; Burke, 1991). As the tool intended to evaluate the whole organization to see how it corporately responded to both the external and internal critical factors, all departments were involved in the self-assessment.

A week after, another set of questionnaires were sent out to the employees of Diagnostika using the structured organizational culture assessment instrument (OCAI) by Cameron & Quinn (1999). These questionnaires were deployed at the time the government declared another bout of lockdown in the national capital region and its neighboring bubble areas. The questions were answered anonymously and were sent back to the HR department for data analyses. A total of 79 usable responses were obtained.

Two sets of data were obtained: one for organizational diagnosis through the ODQ by Preziosi and another was for the organizational culture assessment by Cameron and Quinn. These data were compared to the previous ODQ and OCAI scores that were done in 2019. Furthermore, in light of the change in methodology of communication during pandemic, where there were more time dedicated discussing with the management committee via Zoom compared to the frequency of general meetings with all employees, the post-pandemic assessments were split into two perspectives – supervisory and non-supervisory.

4. DATA ANALYSES

The following were the results of Diagnostika's Weisbord organizational diagnosis through the pre- pandemic (2019) and post-pandemic (2021) ODQ mean scores:

4.1 Descriptive Analysis

Table No. 1 Demographics and Frequencies of ODQ Respondents

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Serial	Demographics	Frequency	%
1	Gender		
	Male	81	73
	Female	30	27
2	Age intervals		
	21-30	50	45%
	31-40	49	44%
	41-50	7	6%
	51-60	5	5%
3	Categories		
	Non-Supervisory	81	73
	Supervisory	30	27

n (Diagnostika) =111

4.2 Comparison of independent samples *t*-test means

Table No. 2 The ODQ Pre- and Post-Pandemic Means Comparison

ODQ VARIABLES	7 BOX 2019 Means (Pre-pandemic)	2021 Means (Post-pandemic)	p-value	Test Result
Purpose	2.17	2.03	0.14	Not significantly different
Structure	2.66	2.41	0.14	Not significantly different
Leadership	2.17	2.06	0.48	Not significantly different
Relationship	2.40	2.19	0.29	Not significantly different
Rewards	2.48	2.48	0.51	Not significantly different
Helpful Mechanisms	2.43	2.27	0.29	Not significantly different
Attitude Towards Change	2.56	2.33	0.31	Not significantly different

4.3 Organizational Diagnosis Questionnaire (ODQ) Pre- (2019) and Post-Pandemic (2021) Quantitative and Qualitative Discussions:

Purposes

The improvement of the ODQ mean for purposes from 2.17 in 2019 to 2.03 in 2021 indicates that goal clarity was established in spite of sudden and drastic operational disruptions. Immediately, after the government announcement of the lockdown, the president virtually met with all employees. This was sustained by regularly communicating with management committee, departments, and individuals via Zoom. Diagnostika's core values, and mission and vision were tenaciously reiterated as the firm's anchor during townhall meetings as it engaged the

pandemic challenges. Swaim (2010), in quoting Drucker's views on planning and managing organizational change, said "often times, in order to implement the business's strategy it may necessitate changes in the organization such as in its structure, technology, people, including a more frequent change, that of the CEO" (p.185).

Structure

The structure means that also improved from 2.66 in 2019 to 2.41 showed that the supervisory and non-supervisory posts remained to perceive an adequate fit between the internal structure of Diagnostika and its quest to implement the new strategies and tactics. Despite structural realignment that focused mainly on sales, marketing, service department, and the creation of a new team to virtually support the whole archipelago – the customer support team, the organization has been aptly adapting to the structural change.

Relationships

The work from home modality resulted in a more fluid job description from March to June 2020 while everybody was in lockdown. The staff position however, floundered when asked to submit productivity reports. As flexibility, the management allowed the employees to do any productive work from home even at the point of asking the other departments what they can do to help. This fostered and encouraged inter- and intradepartmental communications. People who didn't talk to other departments before

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built stronger alliance with colleagues from the other departments. Hence, the score improvement from 2.40 (2019) to 2.19 (2021) indicated that employees welcomed virtual coordination among individuals and departments.

Reward

Interestingly, reward means remained at 2.48 in 2019 and 2021 at the height of the pandemic. The president insured that all employees were given their salaries from March and April 2020 while in lockdown sans productivity report submission. This, too, was regularly communicated to the people through a weekly townhall meeting with all Luzon, Visayas, and Mindanao teams on board via Zoom to address anxieties during the heat of the lockdown. Fifty percent of the commissions and incentives were also released by the end of second quarter. All benefits and healthcare assistance were extended in full to all employees who got sick, and those who asked for assistance were provided for. The mean score demonstrated that in spite of operational difficulties, employee motivation remained high because the physiological, safety, love and belongingness, esteem, and self-actualization needs were acted upon by the management (Maslow, 1970).

Helpful Mechanism

The helpful mechanism scores improved from 2.43 to 2.27 indicating that the reflexive strategies in planning, leading, organizing, and controlling processes during the pandemic crisis were effective in

meeting the organization's objectives. Through focused group discussions, Diagnostika swiftly changed its strategy to "operation Covid 19 complete solution" as product and market development, and market penetration strategies in response to the external trends during pandemic. This was a relevant move because "factors and forces outside an organization's external environment are discontinuous, do not fit neatly together in a pattern, are not interdependent, homeostatic, linear, or highly predictable" (Warner Burke, 2018, p.2). As a result, the target net income for the year was already impressively achieved as early as November 2020.

Attitude towards change

The improvement of scores from 2.56 in 2019 to 2.33 in 2021 indicated that the efforts of the management to introduce organizational change in 2016 paid off. The mean scores indicated that the company's push for organizational change five years back blossomed into productive outcomes mitigating perilous effects of systemic jolts brought about by the sudden lockdown. The people's tendency to resist the idea of work from home modality (as it was their first time) was much lesser compared to its first year of organizational change challenges in 2016. Consequently, many took on the role of being change agents that helped in engaging everyone to cooperate and collaborate in implementing new work guidelines and safety measures.

Leadership

The rating of leadership improved from 2.17 to 2.06. This score improvement was crucial

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as the leadership box is in the middle of the model. This indicated that the prevailing leadership fostered trust and led to rallying of support behind the implementation and evaluation phases. The middle management played key roles in keeping all the boxes aligned especially there were a lot of “firsts” that were done while striving to be resilient.

Table No. 3 Tiered Comparative Means of Seven Boxes: Supervisory vs Non-supervisory

COMPARATIVE MEAN AVERAGE OF SEVEN BOXES BY POSITION TYPE								
Fiscal Year	PURPOSES	STRUCTURE	LEADERSHIP	RELATIONSHIPS	REWARDS	HELPFUL MECHANISMS	ATTITUDE TOWARDS CHANGE	
NON-SUPERVISORY Y n=81	2.19	2.52	2.24	2.29	2.64	2.39	2.47	
SUPERVISORY Y n=30	1.87	2.30	1.88	2.09	2.32	2.15	2.19	

n (Diagnostika) = 111

The comparative means between supervisory and non-supervisory positions showed a systematically higher means of ODQ rating for non-supervisory position than in supervisory posts. This indicates that the middle management are more optimistic and enthusiastic in driving change and improvement in Diagnostika, which is a promising finding.

4.4 Organizational Strengths and Areas for Improvement from ODQ

The strengths based on the seven-box variables are purpose, leadership, and relationship as discussed above. The areas in Diagnostika’s operation that need further improvement, albeit already in good progress, are the areas of structure, rewards, helpful mechanisms, and attitude towards change.

Table No. 4 Organization Culture Assessment Instrument (OCAI) Mean Comparison

OCAI CULTURE	2019 Means	2021 Means	p-value	Test Result
	Pre-pandemic	Post-pandemic		
CLAN CULTURE	54.65	28.71	1.04871E-32	Significantly different
AD HOC CULTURE	13.86	27.47	1.06936E-11	Significantly different
MARKET CULTURE	19.91	24.9	0.000127516	Significantly different
HIERARCHICAL CULTURE	11.58	18.92	3.1258E-07	Significantly different

n (Diagnostika) = 79

4.5 Analysis of Organizational Culture Assessment Instrument (OCAI) Scores

The mean scores in the pre-pandemic 2019 showed that the dominant culture in the current organization of Diagnostika was clan culture. Relationship was the key factor that predominated in the organization. The mean scores reflecting the 2021 post-pandemic culture interestingly demonstrated the melding of clan, ad hoc, and market cultures. The company definitely changed its “ways of doing things around here” in response to the drastic changes imposed by the pandemic. As a socially constructed system, the behaviors and belief systems of Diagnostika evolved overtime. The data comparison between pre- and post-pandemic mean scores revealed that the employees have positively responded to the clarion call of uniting and working together as one in order to keep the organization resilient and sustained in the face of the crises.

4.6 Meta-analysis: The Impact of organizational alignment on organizational culture

The results of the means of ODQ and OCAI showed improved or different means from 2019 to 2021. When an organization is strategically aligned in spite of the crises, its

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organizational culture synergistically transforms and aligns with the corporate goal. Sincere communication, and employee satisfaction by addressing Maslow's (1970) hierarchy of needs contribute to significant motivation producing a transformative performance even at the height of a pandemic. The comparative scores of the Organizational Culture Assessment Index (OCAI) between pre-and post-pandemic showed evidence of change in organizational culture from a predominantly family or clan to a hybrid of clan-adhoc-market cultures. The culture change corroborated with the improvement in the Organization Diagnosis Questionnaire (ODQ) scores specifically with purposes, leadership, and relationship having the lowest means (closer to 1). This indicated that the culture change was also influenced by those three variables that registered lowest means.

When people understand why they exist as an organization (purpose), have strong individual and departmental collaboration and coordination (relationship), and are led effectively at the organizational helm (leadership), culture change in an organization could be facilitated and sustained. Notably, the helpful mechanisms and attitude towards change also improved indicating that there was a positive response towards the external disruptive change. This proved relevant for Diagnostika because "despite some individual successes, change remains difficult to pull off; and most initiatives – installing new technology, downsizing, restructuring, or trying to change corporate culture – have had low success rates. The brutal fact is that about 70 percent of all

change initiatives fail." (Beer & Nohria, 2011, p. 137).

4.7 Managerial Implications

This empirical study showed that, when managers experience challenging pandemic crises, they can view their organization from a systems perspective – not just perceiving it as a structure with a strategy, but a living organism that is dynamically co-inhabiting with its evolving environment. Communicating change and the reason of it become very effective when people see leadership "walk the talk". "Good coaching – motivational, consultative, and educational, helps team members practice and learn the skills and rewards of being superb self-managers, and that is highly unlikely to happen if the coach is rarely around"(Hackman, 2015, p.161).

5. CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH

The results of the organizational alignment through the Organizational Diagnosis Questionnaire (ODQ) showed that there was no significant difference in the score means between pre- and post-pandemic. There was however, a significant improvement in the means of the six boxes variable comparisons from 2019 to 2021. The means of the Organizational Culture Assessment Instrument (OCAI) showed that the culture has shifted from being a predominantly clan or family-oriented firm into a hybrid of clan, ad hoc, and market cultures. The results of this study only applies to Diagnostika and similar firms in the same industry. This initial study could further be explored by making a full blown

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statistical comparison quarter to quarter, and a correlation analysis between ODQ and OCAI scores to discover new findings that could be another focus of further management interventions for improvement.

6. REFERENCES

- Anderson, D. (2015). *Organization development: The process of leading organizational change* (3rd ed.). Thousand Oaks, CA: Sage.
- Beer, M., & Nohria, N. (2011). Cracking the code of change. In *On Change Management*. Boston, MA: Harvard Business Review Press.
- Burke, W. (1991). "Practicing organizational development", in D.W. Bray and Associates, *Working with organizations and their People: A Guide to Human Resources Practice*. Guilford Press, New York, NY, pp. 95-130.
- Cameron, K., & Quinn, R. (1999). *Diagnosing and Changing Organizational Culture*. USA: Addison-Wesley.
- Drucker, P. (2000). *Management Challenges for the 21st Century*. US: John Wiley & Sons
- Hackman, R. (2015). Coaching teams. In *HBR Guide to Coaching employees*. Boston, MA: Harvard Business Review Press.
- Maslow, A. H. (1970). *Motivation and Personality* (2nd ed.) New York: Harper and Row.
- Preziosi, R. (1980). "Organizational Diagnosis Questionnaire". *The 1980 Annual Handbook for Group Facilitators*, University Associates, New Jersey.
- Rothwell, W., Stavros, J., & Sullivan, R. (2016). *Practicing Organization development: Leading transformation, and change*. New Jersey: Wiley.
- Swaim, R. (2010). *The strategic Drucker: Growth strategies and marketing insights from the works of Peter Drucker*. Singapore: Jossey-Bass on behalf of Wiley.
- Warner Burke, W. (2018). *Organization change: Theory and practice* (5th ed). London: Sage Publications.
- Weisbord, M. (1976). Organizational diagnosis: six places to look for trouble with or without a theory", *Group and Organizational Studies*, 1 (4), 430-47.

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Resilience Amid the Pandemic: The Stories of Select Social Enterprises in the Philippines

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Abstract: Social enterprises are hybrid organizations that pursue a social mission while pursuing profits. Because of this pursuit of a dual mission, social enterprises experience internal and external tensions that threaten the viability of these organizations. The processes employed by SEs in resolving these tensions in their day-to-day operations might potentially result in mission drift, especially when an organization consistently favors one mission over the other. These enterprises experience these even without crises. As such, this study asks the question – what happens to social enterprises' social mission as they experience the COVID-19 pandemic. The researchers answered this question by examining interview transcripts, field notes, journal articles, and published materials. The results revealed that SEs might take two different paths in achieving their social mission - intensification of their commitment and fulfillment of their social mission and the continuation of pre-pandemic commitment and realization of their social mission. Although challenging, the selected SEs continued delivering on their promise by recognizing social opportunities and exploiting these by changing their business strategies. The adaptation of digital technologies and the utilization of their social capitals facilitated the sustainability of these SEs in the short term and hopefully in the long term.

Key Words: social enterprises; mission drift; crisis management; social enterprise resilience

1. INTRODUCTION

Social enterprises (SEs) are hybrid organizations that pursue a dual mission – that of profit and a form of social cause (Dees & Anderson, 2003). Under normal circumstances, that is, without a crisis, this simultaneous pursuit of two missions results in various internal and external tensions that threaten the viability of these enterprises (Battilana & Lee, 2014).

Battilana and Lee (2014) elaborate that these tensions become apparent externally when SEs

manage their relationships with external and internal stakeholders. Internally, these tensions are manifested when SEs manage their organizational identity, decision-making, and resource allocation (Battilana & Lee, 2014). The processes employed by SEs in resolving these tensions in their day-to-day operations might potentially result in mission drift, especially when an organization consistently favors one mission over the other (Cornforth, 2014).

However, and as noted earlier, these tensions already exist under normal circumstances. What happens to SEs during a crisis, such as the lockdowns

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resulting from the COVID pandemic? Specifically, how did selected Philippine SEs respond to the challenge of keeping true to their social mission amidst the COVID-19 pandemic?

2. METHODOLOGY

To answer this question, the researchers employed an exploratory case study approach (Yin, 2018). The researchers collected two sets of data for this research. The first set of data consists of published materials and transcripts of interviews conducted before the pandemic hit the country in March 2020. The second set of data consists of published materials and transcripts from interviews conducted and published from March 2020 until March 2021. The interviews conducted were for different research studies. However, the contents of the transcripts contained data that were relevant to the current research. These published materials and interview transcripts were coded together by two of the researchers. Parts of the materials deemed relevant to the research question (Morse, 1997) were manually coded by the two researchers (Saldaña, 2013). Disagreements were resolved through intensive group discussion with the third researcher (Kvale & Brinkmann, 2009). After the coding was done, categories were then identified, and from these, the themes emerged (Saldaña, 2013).

3. SOCIAL ENTERPRISES' BACKGROUNDS

The researchers studied three SEs for this research – The Murang Gulay Shop (TMGS), Everything Green Trading and Consulting, and Make A Difference (MAD) Travel.

The first SE studied was TMGS. Founded by Reden Rojas, TMGS is an online vegetable trader and retailer located in Marikina. The SE buys various agricultural produce at fair prices from farmers in Pangasinan, Nueva Ecija, and Rizal and sells these in Metro Manila for less than ongoing market prices. In

doing so, Metro Manila residents get access to quality agricultural products at lower prices. The SE does so through its usage of a Facebook page. Weekly price lists are posted on the SE's page, and customers order through a google form that can be accessed in a link posted on the page. Depending on the supply and demand of the products, the orders are delivered to the customers' doorsteps in two to three days. The delivery service eliminates the need for its customers to go to the market or groceries. Aside from buying and selling goods at fair market prices, TMGS also strives to employ out-of-school youths/unemployed people within the community in their repacking warehouse in Marikina (personal communication, December 8, 2020).

The second SE studied was Everything Green Trading and Consulting or simply Everything Green. Founded by Camille Albarracin, Everything Green is an eco start-up that provides end-to-end innovative business solutions and concepts at the community level. This start-up aims to revolutionize the hospitality industry by ensuring the industry's core business processes' sustainability. The company's first project was creating, manufacturing, and distributing the green alternative slippers Greenelas. These slippers are made from "bakbak" or dried abaca leaf sheaths and were positioned as a zero-waste alternative for the hospitality industry. To stay true to its mission, the company practiced sustainable production practices by partnering with various communities. The community partners were duly licensed by the Department of Agriculture Philippine Fiber Industry Development Authority and are holders of Community Based Forest Management agreements with the Department of Environment and Natural Resources. Aside from this, the company also employs persons with disabilities in their former manufacturing site in Quezon City (personal communication, December 17, 2020).

The third SE studied was MAD Travel. Founded by Thomas Graham and Rafael Dionisio, MAD Travel is a SE that leverages sustainable social tourism to create opportunities for and with marginalized communities. Through its tour package

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Tribes and Treks, the company does so by bringing local and international tourists to Yangil Village in Zambales – the home of an Aeta community - where guests get a glimpse of the local's way of life. A tree-planting activity is included as part of the tour, which benefits the Aetas' 3,000-hectare ancestral lands. Through these trips, the locals were also able to supplement their income by selling organic fruits, honey, bracelets, bamboo whistles, straws, and mini bow-and-arrow sets to the tourists. Clients were also able to choose other locations for their travel destinations, such as Bataan and Rizal (Aguinaldo, 2020).

4. RESULTS AND DISCUSSION

Based on the data collected and analyzed, the researchers have observed two possible outcomes resulting from the SEs' experiences of the COVID pandemic and how it impacts the pursuit of their social mission.

The first possibility is the intensification of their commitment and fulfillment of their social mission. TMGS has demonstrated this outcome. TMGS experienced an increased demand for their products. This situation resulted in TMGS having to buy more vegetables and fruits from the provincial farmers, resulting to increase revenues for farmers. As prices of commodities continued to soar during the height of the last year's lockdown (de Vera, 2020), the company benefitted more customers as it still maintained its low prices to continue fulfilling its mission. As more cash came into the firm, Mr. Rojas found new ways of helping poor farmers in the provinces by providing them with the capital needed for a planting season at no interest. He also guaranteed to buy the crops by the end of the season at fair market prices. In this sense, the firm was able to find new ways of helping its partner farmers. In addition, the owner also went into several franchising agreements to ensure that more customers will benefit from the lower prices that the SE has to offer (personal communication, December 8, 2020).

The second possibility is the continuation of a SE's delivery of its social mission through modification/s of its business models. Everything Green and MAD Travel exemplified this possibility.

Everything Green had to close temporarily. Since the company's target market (hotels and resorts) in the hospitality industry was one of the most negatively affected by the lockdown (Mirasol, 2020), orders for its Greenelas were canceled. The SE considered how it could continue to help the disadvantaged communities and people with disabilities (PWDs) who have benefited from the business. "We had to come up with a crowdfunding initiative to cater to the needs of our people," says Camille Albarracin personal communication, December 17, 2020). Aside from this initiative, Ms. Albarracin saw the need to pivot. The old business model would have to change, or else the firm might not survive. Everything Green started creating and selling new items, such as fashion accessories and wearables. The company also made its e-commerce platform, enabling it to move from a business-to-business to a business-to-consumer model (personal communication, December 17, 2020).

MAD Travel had a similar experience as that of Everything Green. As with the hospitality industry, the tourism industry was also negatively affected due to the restrictions imposed as a response to the pandemic (Mirasol, 2020). The tourism blockade meant that MAD Travel had to stop offering their guided tours. This blockade resulted in the Aeta community's loss of income. Motivated to continue providing support to the various communities, MAD Travel came up with new initiatives. One of these was the online global crowdfunding campaign called "Feed the Farmers Today, Fund Tomorrow's Forest." Funders were encouraged to buy trees which then paid for the labor of the Aetas that will plant these trees. The enterprise also launched MAD Market, an online delivery service that procured products from farming communities such as Benguet, Davao, and Nueva Ecija. Lastly, the company launched an online education program with topics about innovation, sustainability, and social enterprises called MAD

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Courses (Aguinaldo, 2020; Make A Difference Travel, 2021).

4. EMERGING THEMES

The researchers were able to identify four interconnected themes that enabled these SEs to either intensify or continue the fulfillment of their social mission.

The first theme that emerged is the role and importance of the process of recognizing social opportunities among the SEs. When taken advantage of, social opportunities enable entrepreneurs to create additional social value (Monllor, 2010). While the three SEs faced different situations and corresponding challenges, the researchers identified that all recognized social opportunities for intensifying or continuing the fulfillment of their social mission. The awareness that provincial farmers lacked financial capital, the increase in the demand for its products and service and the excess liquidity that came with it provided the perfect combination for the SE. While it seemed that Everything Green's and MAD Travel's situation initially seemed hopeless, these two organizations discovered different ways to continue fulfilling their social missions. They both implemented crowdfunding initiatives and, later on, implemented other strategies to sustain their organizations.

Intimately connected to the first and, as already hinted, the second theme is the process of social opportunity exploitation. As the three SEs were already operating when the pandemic hit, this exploitation came in the form of pivoting or changing the organizations' business models. The SEs executed the pivots or changes in strategies in different ways as they faced different contexts. For TMGS, the increase in demand enabled the SE to implement its strategy of franchising. As the number of franchisees increases, the number of customers that will benefit from the cheaper agricultural products will also increase. The subsequent increase in cash flow also enabled the SE to aid farmers by providing capital requirements at no

interest to the farmer. This action allows TMGS to intensify its commitment to help poor farmers in the provinces. For Everything Green, the pivot took the form of a shift of its target market from B2B to B2C. A product diversification strategy was also employed to accompany this shift. Lastly, for MAD Travel, the pivot necessitated the complete abandonment of the former business model and the creation of new initiatives with different business models. While different from what the owners initially planned out, these initiatives still enable the SE to continue delivering its mission. As Graham puts it

"We identified some time ago that... we're a platform that connects people. When you look at it more broadly like that... then you see that even when tourism has dried up, and we all remain pretty slow for, let's say the next six months at least, we're now looking in a broader sense at our mission. We still believe that there's something very special in our communities and our community partners" (Aguinaldo, 2020).

This finding is consistent with studies found in the adaptation literature, positing that organizations respond to ongoing external pressures for change. Organizations must remain flexible and should be able to adjust to new external conditions (Brown & Eisenhardt, 1997; Teece et al., 1997). The three SEs ability to adapt rapidly to changing environmental expectations and demands constitutes a competitive advantage (Eisenhardt & Martin, 2000) for the organizations, thus contributing to the sustainability of the enterprises.

The third theme is the role and importance of digital technologies. While the three cases used digital technologies to various degrees before the pandemic, it is apparent that all three utilized some form of technology to intensify/continue fulfilling their social mission during the pandemic. TMGS was already conducting business using social media before the pandemic. Such a digitally enabled business model proved to be a competitive advantage when the lockdowns were imposed. Everything Green and MAD Travel both utilized online crowdfunding platforms to

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continue giving support to their partner communities. Both SEs had to pivot their business models, and these pivots entailed the use of digital technologies such as the implementation of e-commerce platforms. These findings echo Priyono and colleagues' (2020) study and how they found out that "sales function digitalization is compulsory" for small and medium enterprises' success during the crisis (p. 19). Framed in this light, it seems that digital technologies are resilience enablers and contribute to the sustainability of these SEs.

Lastly and no less intertwined is how all SEs made use of their social capital. According to Putnam (1993), social capital pertains to "features of social organizations, such as networks, norms, and trust that facilitate action and cooperation for mutual benefit" (p. 35). The three SEs were able to utilize their accumulated social capital in different ways. TMGS demonstrated this by tapping its network of farmers to find those farmers that are willing to receive the financial capital. In turn, TMGS benefits by having an assured supply of vegetables at fair market prices. Both Everything Green and MAD Travel utilized their social capital to ensure their continuity. For example, the success of the crowdfunding initiatives by both SEs meant that their audience was very supportive of their causes. In turn, these two organizations provided an avenue for their audiences to extend their aid to those in need. The mutual benefits derived in this relationship accrues more to these two SEs as their organizational resilience is enhanced, similar to the findings of other studies (Chowdhury et al., 2019; Jia et al., 2020).

5. CONCLUSIONS

This exploratory research has found that SEs may take two different paths to achieve their social mission during crises - intensifying their commitment and continuous fulfillment of their social mission. Although challenging, the selected SEs continued delivering on their promise by recognizing social opportunities and exploiting these by changing their <https://doi.org/10.2307/2393807>

business models and strategies. The adaptation of digital technologies and the utilization of their social capitals facilitated the sustainability of these SEs in the short term and hopefully, also in the long term.

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6. REFERENCES

- Aguinaldo, M. (2020, May 11). How MAD Travel is tackling tourism in the time of COVID-19. *Business World Spark Up*. <https://www.bworldonline.com/sparkup-community-how-mad-travel-is-tackling-tourism-in-the-time-of-covid-19/>
- Battilana, J., & Lee, M. (2014). Advancing research on hybrid organizing - Insights from the study of social enterprises. *Academy of Management Annals*, 8(1), 397-441. <https://doi.org/10.1080/19416520.2014.893615>
- Brown, S. L., & Eisenhardt, K. M. (1997). The art of continuous change: Linking complexity theory and time-paced evolution in relentlessly shifting organizations. *Administrative Science Quarterly*, 42(1), 1-34.
- Chowdhury, M., Prayag, G., Orchiston, C., & Spector, S. (2019). Postdisaster social capital, adaptive

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- resilience and business performance of tourism organizations in Christchurch, New Zealand. *Journal of Travel Research*, 58(7), 1209–1226. <https://doi.org/10.1177/0047287518794319>
- Cornforth, C. (2014). Understanding and combating mission drift in social enterprises. *Social Enterprise Journal*, 10(1), 3–20. <https://doi.org/10.1108/sej-09-2013-0036>
- Dees, J. G., & Anderson, B. (2003). For-profit social ventures. *International Journal of Entrepreneurship Education*, 2(1), 1–26. <http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:For-Profit+Social+Ventures#0>
- Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, 21(10–11), 1105–1121. [https://doi.org/10.1002/1097-0266\(200010/11\)21:10/11<1105::AID-SMJ133>3.0.CO;2-E](https://doi.org/10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E)
- Jia, X., Chowdhury, M., Prayag, G., & Hossain Chowdhury, M. M. (2020). The role of social capital on proactive and reactive resilience of organizations post-disaster. *International Journal of Disaster Risk Reduction*, 48(January), 101614. <https://doi.org/10.1016/j.ijdrr.2020.101614>
- Kvale, S., & Brinkmann, S. (2009). *Interviews: Learning the craft of qualitative research interviewing* (2nd edition). Sage.
- Make A Difference Travel. (2021). *MAD Travel*. <https://madtravel.org/>
- Mirasol, P. (2020, April 21). Measuring COVID-19's impact on local hospitality and tourism sectors. *Business World Spark Up*.
- Monllor, J. (2010). Social entrepreneurship: A study on the source and discovery of social opportunities. In K. Hockerts, J. Mair, & J. Robinson (Eds.), *Values and Opportunities in Social Entrepreneurship* (pp. 99–121). Palgrave Macmillan.
- Morse, J. M. (1997). "Emerging from the data": The cognitive processes of analysis in qualitative inquiry. In J. M. Morse (Ed.), *Critical issues in qualitative research methods* (pp. 22–43). Sage.
- Priyono, A., Moin, A., & Putri, V. N. A. O. (2020). Identifying digital transformation paths in the business model of SMEs during the COVID-19 pandemic. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4). <https://doi.org/https://doi.org/10.3390/joitmc6040104>
- Putnam, R. (1993). The prosperous community. *The American Prospect*, 4(13), 35–42.
- Saldana, J. (2013). *The coding manual for qualitative researchers* (2nd ed.). Sage Publications Inc. www.sagepublications.com
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533. [https://doi.org/Doi 10.1002/\(Sici\)1097-0266\(199708\)18:7<509::Aid-Smj882>3.0.Co:2-Z](https://doi.org/Doi 10.1002/(Sici)1097-0266(199708)18:7<509::Aid-Smj882>3.0.Co:2-Z)
- Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). Sage Publications, Inc.

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Parallel Session C: Consumption

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Online Retail Therapy: A Coping Technique Affecting Consumer's Subjective Wellbeing

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Abstract: The heightened stress levels of Filipino consumers due to the COVID-19 pandemic cause an individual to undergo coping, consistent with the Transactional Model of Stress and Coping by Lazarus and Folkman. Various strategies focused on coping strategies and techniques but a few investigated the positive effect of an emotion-based consumer behavior as a coping technique or strategy for pandemic-related perceived stress. This paper contains a quantitative, cross-sectional and exploratory research on online retail therapy, a consumer behavior that alleviates stress and reduces negative emotions, and its effectiveness as an emotion-based coping method for Filipino consumers, ages 18-40 years old with college degree or higher, who shopped online during the time of pandemic lockdown and quarantine in the Philippines. The research also intends to measure its effect on emotions and subjective wellbeing using the retail therapy scale developed by Kang and Johnson. The results indicate that although online retail therapy is used by consumers to cope with their pandemic-related perceived stress, it has minimal and short-term effect in reduction of negative emotions and therefore considered as a technique rather than a strategy.

Key Words: online retail therapy; subjective wellbeing; consumer behavior; perceived stress; affect

1. INTRODUCTION

The COVID-19 pandemic has caused economic and public health threats that heightened the stress and anxiety levels of the population (Torales et al., 2020). Several researchers studied both positive coping strategies (Huang et al., 2020; Restubog et al., 2020; Guan et al., 2020) and negative coping strategies (Savitsky et al., 2020) that help the individuals to cope and to manage their wellbeing during this pandemic. Despite this, studies about emotion-based coping strategies that focus mainly on individuals' behavior as consumers or consumerism, which may help online businesses to engage their customers during the pandemic, are limited. One of

the understudied consumer behaviors that deal with alleviation of stress is retail therapy (Gregoire, 2013, as cited in Lee & Böttger, 2017).

The term 'retail therapy' was initially coined by popular press but it later became a subject of interest of researchers. The research studies mentioned that some consumers are driven by negative emotions and moods as motivation (Kang & Johnson, 2011, Irwin, 2018, Gitumu & Withaika, 2018; Burke, 2018). In their study, the consumers used shopping as a way not only to repair and reduce negative moods (Atalay & Meloy, 2011, as cited in Irwin, 2018) but also alleviate their stress (Gregoire, 2013, as cited in Lee & Böttger, 2017). Although many researchers claimed that retail therapy has positive

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effects on the consumers (Gitimu & Withaika, 2018), other researchers argued that it is more highly associated with negative behaviors such as maladaptive practice (Irwin, 2018), impulse buying behavior, overconsumption and compulsive buying behavior (Gitimu & Waithaka, 2018). Researchers mainly used traditional shopping as basis of their observations, and according to Santhiya and Elavasaran (2020), only a few of them measured the therapeutic effects of online shopping during the COVID-19 pandemic (Santhiya & Elavasaran, 2020). Since online retail therapy affects an individual's emotions and is said to alleviate stress, the research paper measures its effect as a coping method to consumer's subjective wellbeing.

2. METHODOLOGY

The research follows the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984). The theory posits that an individual assesses stressors and activates the appraisal processes of the degree or threat in relation to his or her wellbeing (Goh, Sawang & Oei, 2010; Parker, et al., 2012; Ben-Zur et al., 2019) and discusses the response to these stressful events (Park & Folkman, 1997). Such coping to perceived stress depends on the individual's resources and responses. The model furthers to reappraisal which is done based on the changes of an individual's personal or environmental responses caused by the coping strategy used (Ben-Zur et al., 2019). The conceptual framework was created following the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984). In this study, coping was measured using the scale developed for retail therapy which named four distinct constructs: therapeutic shopping motivation, negative mood reduction, positive mood reinforcement and therapeutic shopping outcome (Kang & Johnson, 2011). The conceptual framework suggests that individuals cope to pandemic-related perceived stress by online retail therapy and the reappraisal on an individual's positive or negative emotions, which in turn affect a consumer's subjective wellbeing. The researcher used quantitative, cross-sectional and exploratory design and measured the constructs by validated questionnaires for Perceived Stress Scale or PSS (Cohen & Mermelstein, 1994), Retail Therapy Four Factor Scale (Kang & Johnson, 2011), Negative Affect Positive Affect Scale or NAPAS (Joshani, 2017; Watson, Clark & Tellegen, 1988), and Temporal Satisfaction with Life Scale (Pavot, Diener & Suh, 1998). Respondents were screened by age bracket of 18 to 40 years old and educational background of

college degree or higher, and were further screened by online shopping activity.

3. RESULTS AND DISCUSSION

The composite reliability and Cronbach's Alpha of more than 0.80 showed the reliability of the instrument and through Fornell-Lacker criterion, the average variance extracted (AVE) that measured convergent validity was also satisfied at more than 0.50 across all variables. Despite this, majority of the constructs were supported with very weak to weak positive relationships. The results indicated that perceived stress indeed triggers an individual to adapt a coping method, consistent with the study conducted by Lee (2015) who concluded that emotional distress motivates a person to do retail therapy (Lee, 2015). The results also showed consistency with the definition of retail therapy according to the research studies by Kang and Johnson (2011), Gitimu and Withaika (2018), Burke (2018) and Irwin (2018), however, the data showed only weak to moderate effect of online retail therapy to negative emotions. On the other hand, the results indicated that online retail therapy are not associated to positive affect as oppose to the research studies by Matthews (2018) and Irwin (2018). Lastly, the results supported the research by Diener et al. (2018) that negative emotions and positive emotions affect subjective wellbeing.

4. CONCLUSIONS

Perceived stress caused by the COVID-19 pandemic indeed triggers Filipinos to use online retail therapy to temporarily uplift their moods and emotions rather than to use it as long-term coping strategy during the pandemic. Therefore, it has little or no direct effect on Filipino consumers' subjective wellbeing. It is still recommended for online businesses to put this as consideration to minimize any online transactions that elevates negative moods.

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6. REFERENCES

- Ben-Zur, H., Zeigler-Hill, V., & Shackelford, T. K. (2019). Transactional model of stress and coping. *Encyclopedia of Personality and Individual Differences*, 1-4.
- Burke, K. (2018). The Neuroscience Behind Retail Therapy. *Student Publications 864*. Retrieved October 29, 2020, from <https://epublications.regis.edu/theses/864>
- Cohen, S., Kamarck, T., & Mermelstein, R. (1994). Perceived stress scale. *Measuring stress: A guide for health and social scientists*, 10, 1-2.
- Diener, E., Oishi, S., & Tay, L. (2018). Advances in subjective well-being research. *Nature Human Behaviour*, 2(4), 253. <https://doi.org/10.1038/s41562-018-0307-6>
- Gitimu, P.N., & Waithaka, A. G. (2018). Retail therapy: Influence of life engagement and subjective happiness. *Journal of Behavioral Studies in Business*, 10, 1-12.
- Goh, Y. W., Sawang, S., & Oei, T. P. (2010). The Revised Transactional Model (RTM) of occupational stress and coping: An improved process approach. *Australian and New Zealand Journal of Organisational Psychology*, 3(1), 13. <https://doi.org/10.1375/ajop.3.1.13>
- Guan, Y., Deng, H., & Zhou, X. (2020). Understanding the impact of the COVID-19 pandemic on career development: Insights from cultural psychology. *Journal of Vocational Behavior* 119. <https://doi.org/10.1016/j.jvb.2020.103438>
- Huang, L., Lei, W., Xu, F., Liu, H., & Yu, L. (2020). Emotional responses and coping strategies in nurses and nursing students during Covid-19 outbreak: A comparative study. *PloS one*, 15(8). <https://doi.org/10.1371/journal.pone.0237303>
- Irwin, C. (2018). Emotional Outlet Malls: Exploring Retail Therapy. *BU Well*, 3(1), 8. Retrieved October 29, 2020, from <https://digitalcommons.butler.edu/buwell/vol3/iss1/8/>
- Joshanloo, M. (2017). Factor structure and criterion validity of original and short versions of the Negative and Positive Affect Scale (NAPAS). *Personality and Individual Differences*, 105, 233-237. <https://doi.org/10.1016/j.paid.2016.09.060>
- Kang, M., & Johnson, K. K. (2011). Retail therapy: Scale development. *Clothing and Textiles Research Journal*, 29(1), 3-19. <https://doi.org/10.1177/0887302X11399424>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer publishing company.
- Lee, L. (2015). *The emotional shopper: assessing the effectiveness of retail therapy*. Now. https://web2-bschool.nus.edu.sg/wp-content/uploads/media_rp/publications/gnDja1441015005.pdf
- Lee, L., & Böttger, T. M. (2017). The Therapeutic Utility of Shopping: Retail Therapy, Emotion Regulation, and Well-Being. The Routledge Companion to Consumer Behavior. Retrieved from: https://web2-bschool.nus.edu.sg/wp-content/uploads/media_rp/publications/jcm5q1491185835.pdf
- Park, C. L., & Folkman, S. (1997). Meaning in the context of stress and coping. *Review of general psychology*, 1(2), 115-144. <https://doi.org/10.1037/1089-2680.1.2.115>
- Parker, P. D., Martin, A. J., Colmar, S., & Liem, G. A. (2012). Teachers' workplace well-being: Exploring a process model of goal orientation, coping behavior, engagement, and burnout. *Teaching and Teacher Education*, 28(4), 503-513. <https://doi.org/10.1016/j.tate.2012.01.001>
- Pavot, W., Diener, E., & Suh, E. (1998). The temporal satisfaction with life scale. *Journal of personality Assessment*, 70(2), 340-354. https://doi.org/10.1207/s15327752jpa7002_11
- Restubog, S. L. D., Ocampo, A. C. G., & Wang, L. (2020). Taking control amidst the chaos: Emotion regulation during the COVID-19 pandemic. *Journal of Vocational Behavior* 119. <https://doi.org/10.1016/j.jvb.2020.103440>
- Santhiya, M. R., & Elavarasan, R. (2020). A Study on Perceptive The Covid-19 Effect on Online

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Shopping Behavior. *Academic Leadership-Online Journal*, 21(7), 66-71.

Savitsky, B., Findling, Y., Ereli, A., & Hendel, T. (2020). Anxiety and coping strategies among nursing students during the covid-19 pandemic. *Nurse Education in Practice* 46. <https://doi.org/10.1016/j.nepr.2020.102809>

Torales, J., O'Higgins, M., Castaldelli-Maia, J. M., & Ventriglio, A. (2020). The outbreak of COVID-19

coronavirus and its impact on global mental health. *International Journal of Social Psychiatry*, 66(4), 317–320. <https://doi.org/10.1177/0020764020915212>

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of personality and social psychology*, 54(6), 1063.

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Study on the Impacts of Online Shopping Values, Web Atmospheric Cues, and Electronic Word-of-Mouth on Young Millennials' Repurchase Intention

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Abstract: Due to the advent of technology, the internet, and the recent crisis brought about by the COVID-19 pandemic, substantial growth in the Philippine E-Commerce Industry has become very evident; where it has changed the way individuals buy and sell their products and services. With these exponential changes in consumption patterns where face-to-face contact has significantly decreased, the use of online shopping platforms has become sensational.

This quantitative and cross-sectional research attempts to explore and investigate the impacts of Online Shopping Values, Web Atmospheric Cues, and Electronic Word-of-Mouth on E-Satisfaction, and the direct effect of E-Satisfaction to Young Millennials' Repurchase Intention ages 24 to 31 years old, and currently residing in Metro Manila and in nearby provinces, and who are exposed to a particular online shopping platform. The study adopts Stimulus-Organism-Response (S-O-R) Model by Mehrabian and Russell (1974) which is rooted in the Theory of Environmental Psychology.

From the survey findings, it is observed that internal influence (Utilitarian Shopping Value), and external influence (Effectiveness of Information Content), (Web Entertainment) have significant and a greater impact in shaping E-Satisfaction. Moreover, the study accentuates the significant effect of E-Satisfaction on Young Millennials' Repurchase Intention using the same online platform.

Further, the results show that repurchase intention using the same online shopping platforms can be achieved if and only if e-retailers give more focus on the website environmental stimuli that stimulate and dictates their level of E-Satisfaction which affects the entire online shopping experience.

Key Words: Online Shopping Values; Web Atmospheric Cues; Electronic Word-of-Mouth; E-Satisfaction; Repurchase Intention

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1. INTRODUCTION

The emergence of technology particularly the development of the internet has changed the way individuals shop and buy their products/services (Vijay et. al, 2019). This is also evident among business firms that more likely and significantly use E-Commerce as a way to connect, communicate, and disseminate information to persuade and retain potential and present customers through the use of the internet (Prashar et. al, 2019). E-Commerce, particularly online shopping through the use of different online shopping platforms has become trending because of the COVID-19 pandemic.

Several studies and researches back then have pointed out the significance of Information Communication Technology (ICT) especially in the promotion and distribution of goods and services, alongside the ease of transaction and security of financial dealings (Vijay et. al, 2019). In comparison to what has been practiced then, E-commerce has allowed individuals to maximize their time, and not to exert too much effort on buying their essentials. It is through E-Commerce where such dealings can be successfully done and completed over the internet.

LAZADA (Novenario, et al, 2018), is one of the growing online shopping websites in Asia due to the tremendous development of technology and rapid increase in the usage of e-commerce, online shopping has become a rising trend in the Philippines and is considered to be a huge trend in the world (Muya, et al, 2018).

However, this particular advancement and upgrade in technology have also created a niche for the in-depth and strategic understanding of E-Satisfaction and Repurchase Intention in the context of using the same online shopping platform.

2. METHODOLOGY

The study adopts Stimulus-Organism-Response (S-O-R) Model by Mehrabian and Rusell (1974) which is rooted in the Theory of Environmental Psychology. The model is conceptualized in understanding "the impact of environmental

(S)timuli, which affect (O)rganisms (consumers; O) and result in approach or avoidance (R)esponse behaviors in-store searching, intention to purchase, and repurchase intention".

In this study, the conceptual framework was created following the S-O-R Model (Mehrabian & Rusell, 1974). Since there were recent studies that made use of the same theoretical framework and variables, electronic word-of-mouth was added as a stimulus, and repurchase intention as the expected response.

A thorough review of the literature was made and seven (7) constructs were identified. In order to measure the identified constructs, the survey instrument was generated using validated items developed and used by other studies. After series of reviews on the appropriateness of constructs and items, thirty-one (31) statements were selected to capture the underlying constructs. Most of the measurement items from the questionnaire were adopted and adapted from prior researches made by T Sai Vijay, Sanjeev Prashar, and Vinita Sahay in 2017 (The Effects of Online Shopping Values and Website Cues on Purchase Behavior), and 2019 (The Influence of Online Shopping Values and Web Atmospheric Cues on E-Loyalty: Mediating Role of E-Satisfaction, and Zeki Atil Bulut's research on the Determinants of Repurchase Intention in Online Shopping: A Turkish Perspective (2015), and from the Impact of Electronic Word of Mouth on Customer Satisfaction (Hsiao-Ching Kuo and Chinitorn Nakhata, 2019).

Respondents were screened by age bracket of 24 to 31 years old, currently residing in Metro Manila and nearby provinces, and were further screened by their exposure in using the same online shopping platform.

3. RESULTS AND DISCUSSION

The results have revealed that the construct measures for Hedonic and Utilitarian Shopping Values, Web Atmospheric Cues such as Web Informativeness, Effectiveness of the Information Content, and Web Entertainment, Electronic Word-of-Mouth, E-Satisfaction, and Repurchase Intention are considered valid and reliable. Based on its internal

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consistency reliability, the Cronbach Alpha Coefficient of a Scale of variables is deemed to be satisfactory since they fall above 0.7. Ideally, the Cronbach Alpha Coefficient of Scale should be above 0.7. More so, based on the results of the composite reliability, the constructs per variable are also considered satisfactory because they fall between 0.70, if not more than 0.90 (Nunnally & Bernstein, 1994).

The Path Coefficients for Path Models are presented in the study and were used to assess the hypothesized direct effects based on the researcher's conceptual framework. Based on findings, Utilitarian Shopping Value has a significant and direct effect on E-Satisfaction considering its path coefficient of 0.209 and P-value of 0.007.

Aside from Utilitarian Shopping Value, Effectiveness of Information Content as one of the Web Atmospheric Cues has found to have a significant and direct effect on E-Satisfaction with its path coefficient of 0.197 and P-value of 0.013. In addition, a significant and direct effect from Web Entertainment to E-Satisfaction was found considering its path coefficient of 0.371 and P-value of 0.001.

R-square for E-satisfaction in terms of the first six (6) variables under stimuli based on the conceptual framework namely Hedonic Shopping Value, Utilitarian Shopping Value, Web Informativeness, Effectiveness of Information Content, Web Entertainment, and Electronic Word-of-Mouth is 0.709 indicating the highly substantial level of predictive accuracy.

The same significant and direct effect of E-Satisfaction to Repurchase Intention was evidently found with its path coefficient of 0.781 and P-value of 0.001. The R-square for repurchase intention and e-satisfaction equal to 0.601 is considered moderate. There were, however, no significant and direct effects from Hedonic Shopping Value, Web Informativeness, and Electronic Word-of-Mouth to E-Satisfaction.

4. CONCLUSIONS

The study proposes implications among e-retailers to better understand online shoppers' behaviors and by specifying features that should be given more importance in order to increase online consumer e-satisfaction and repurchase intention. It

also contributes significantly in identifying the robustness of factors influencing Young Millennials' Online Shopping Behavior towards Repurchase Intention using the same online shopping platform. The research has identified two (2) stimuli that have significant effects and influence on Young Millennials' E-Satisfaction, and in turn, on their Repurchase Intention.

The following stimuli specifically Utilitarian Shopping Value, Effectiveness (internal influence), Effectiveness of Information Content, and Web Entertainment (external influences) were the predictors that significantly influence Young Millennials' E-Satisfaction.

Young Millennials' E-Satisfaction is mostly concentrated on extrinsic factors or utilitarian shopping value specifically on the perspective of purchasing good quality products and services online, with the right value for money (right priced). More so, Young Millennials' E-Satisfaction depends on the Effectiveness of Information Content and Web Entertainment, two of the external influences, variables under Web Atmospheric Cues. Based on data results, those online shopping websites that have enough information content, well designed, and stimulate web entertainment and excitement among online shoppers would probably enhance Young Millennials' E-Satisfaction and Repurchase Intention using the same online shopping platform.

Ultimately, online retail managers, if not online shopping platforms' managers must take into consideration to be more conscious of the intrinsic and extrinsic influences that greatly affect the whole online shopping experience. Thus, an online shopper who is satisfied with his or her experience using a particular online shopping platform is more likely to return to the same site for shopping again.

5. ACKNOWLEDGMENTS

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6. REFERENCES

Akter, Shahriar & Fosso Wamba, Samuel & Dewan, Saif. (2017). Why PLS-SEM is suitable for complex modeling? An empirical illustration in

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Conference theme: "Enabling the Transformation of Resilient Business Environment and Innovation Ecosystem in the ASEAN"

- Big Data Analytics Quality. Production Planning and Control. In Press.
- Al-dweeri, R., & Obeidat, Z. (2017). The Impact of Electronic Word-of-Mouth on Customer Satisfaction. Retrieved September 04, 2020.
- Chen, C. H., & Klaus, P. (2015). Exploring Electronic Word-of-Mouth (eWOM) in The Consumer Purchase Decision-Making Process: The Case of Online Holidays – Evidence from United Kingdom (UK) Consumers. Retrieved September 04, 2020.
- Chen, C., Nguyen, B., Klaus, P., & Wu, M. (2015). Exploring Electronic Word-of-Mouth (eWOM) in The Consumer Purchase Decision-Making Process: The Case of Online Holidays – Evidence from United Kingdom (UK) Consumers. *Journal of Travel & Tourism Marketing*, 32(8), 953-970.
- Dixon, E. (2019, February 02). People in the Philippines spend the most time online, global report finds. Retrieved September 04, 2020, from <https://edition.cnn.com/2019/02/01/health/philippines-highest-internet-use-sci-intl/index.html>
- Fry, R., (2019). Millennial Life: How young adulthood today compares with prior generations. *Research Gate. Net Publication*.
- How Each Generation Shops in 2020? (2020, February 27). Retrieved September 04, 2020, from <https://salesfloor.net/blog/generations-shopping-habits/>
- Khan, A. A., Wang, M. Z., Ehsan, S., Nurunnabi, M., & Hashmi, M. H. (2019). Linking Sustainability-Oriented Marketing to Social Media and Web Atmospheric Cues. *Sustainability*, 11(9), 2663.
- Kuo, H. C., & Nakhata, C. (2019). (PDF) The Effect of Customer Satisfaction on Word of Mouth September 4, 2020.
- Kuo, H., & Nakhata, C. (2019). The Impact of Electronic Word-of-Mouth on Customer Satisfaction. *Journal of Marketing Theory and Practice*, 27(3), 331-348.
- Ladhari, R., Gonthier, J., & Lajante, M. (2019). Generation Y and online fashion shopping: Orientations and profiles. *Journal of Retailing and Consumer Services*, 48, 113-121.
- Moreno, F.M, Lafuente, J.G., Carreon, F.A., & Moreno, S. A. (2017). The Characterization of the Millennials and Their Buying Behavior. *International Journal of Marketing Studies*.
- Nartea, M. A., Santos, J.M., & Goyonechea, A. G. (2019). Exploring the Characteristics of Millennials in Online Buying Behavior. *Asia Pacific Journal of Multidisciplinary Research, Volume 7 No. 4, Part III, 1-9*
- Nghia, H., Olsen, S., & Trang, N. (2020, February 03). Shopping value, trust, and online shopping well-being: A duality approach. Retrieved September 04, 2020.
- Nisar, T., & Prabhakar, G. (2017, August 04). What factors determine e-satisfaction and consumer spending in e-commerce retailing? Retrieved September 06, 2020.
- PayPal, reported by the Manila Times, Philippines' E-Commerce market will grow to US\$3.5 billion by 2020.
- Prashar, S., Vijay, T. S., & Parsad, C. (2017). Effects of Online Shopping Values and Website Cues on Purchase Behaviour: A Study Using S-O-R Framework. *Vikalpa: The Journal for Decision Makers*, 42(1), 1-18.
- Putri, K., & Balqiah, T. (2017). Do Web Atmospheric Affect Purchase Intention? The Role of Color and Product Display. *Do Web Atmospheric Affect Purchase Intention? The Role of Color and Product Display*.
- Rahman, S. U. (2017). Motivations and barriers to purchasing online ... Retrieved September 4, 2020.

2021 ASEAN UNIVERSITY NETWORK BUSINESS AND ECONOMICS VIRTUAL CONFERENCE

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Conference theme: "Enabling the Transformation of Resilient Business Environment and Innovation Ecosystem in the ASEAN"

Sakhar, A. (2011). Impact of Utilitarian and Hedonic Shopping Values on ... Retrieved September 4, 2020.

Sanjeev Prashar, T. (n.d.). Effects of Online Shopping Values and Website Cues on Purchase Behaviour: A Study Using S-O-R Framework - Sanjeev Prashar, T. Sai Vijay, Chandan Parsad, 2017.

Troena, E., & Armanu, N. (1970, January 01). [PDF] The Effect of e-WOM on Destination Image, Satisfaction and Loyalty: Semantic Scholar. Retrieved September 04, 2020

Vijay, T. S., Prashar, S., & Sahay, V. (2019). The Influence of Online Shopping Values and Web Atmospheric Cues on E-Loyalty: Mediating Role of E-Satisfaction. *Journal of Theoretical and Applied Electronic Commerce Research*.

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Effect of COVID-19 pandemic on shopper trip type, frequency and average spend of grocery shoppers in Metro Manila

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Abstract: The study examined the effect of a pandemic and provide substantive empirical evidence on its impact on shopping behavior of consumers when buying grocery products. This behavior focuses on shopping trip type, average spend and shopping frequency. The research used data generated from around 420 Metro Manila respondents who are the main grocery shoppers in their family. Data was obtained during November 2020 where general community quarantine was still in effect. The results of the study has shown that during a pandemic, most shoppers' trip type is main shop where they tend to buy more with a budget of Php5,000 up but visit the channel less frequent at around 2-3x a month versus their weekly shopping trip pre-pandemic. The study has also shown that a shopper's budget has a significant relationship with their shopping trip type. This research provides to the growing knowledge base on how shoppers are behaving during the COVID-19 pandemic making an original contribution to knowledge with implications on manufacturer and retailer strategies and input to the growing knowledge to be used by the academe.

Key Words: Consumer buying behavior, Covid-19 pandemic, Shopping Frequency, Average Spend, Shopping Trip Type

1. INTRODUCTION

Coronavirus (COVID-19) is a highly infectious disease caused by a new strain of coronavirus that began in Wuhan, China last December 2019. The disease soon became an outbreak as it has spread globally across countries as WHO announces COVID-19 as a global pandemic. Enhanced Community Quarantine was announced for the entire island of Luzon banning all public events, closure of commercial and retail businesses, closure of schools, suspension of mass public transportation and strict home quarantine and social distancing (Bautista & Luz Lopez, 2020). This caused disruptions to grocery food retailing, which is one of the most common and essential market processes done by consumers. Grocery retailers also supported the government in their COVID-19 preventive initiatives by having

adjusted mall opening hours and limiting the number of people who could be inside the store at the same time (Negrillo, 2020). Stores are also implementing social distancing measures by requiring a safe distance of 2 meters between customers and store personnel. In some municipalities, local government issued quarantine passes and only allowed one member of the family to go out and do their groceries (Negrillo, 2020). This forced in a lot of the Filipino households to stay in their houses and adhere to the strict quarantine imposed by the government. At the start of the quarantine, we saw a spike in purchases as shoppers stock up on basic goods and disinfectant for coronavirus defense (Carandang, 2020). Environmental stressors, such as the pandemic, trigger the impulse to stockpile due to fear and uncertainty (Sterman & Dogan, 2015). The Department of Trade and Industry then issued guidelines on purchases to avert panic buying and

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hoarding of groceries as shoppers prepare to live in quarantine and prepare their pantries. With this, consumers continued to increase their in-home consumption as most Filipinos stayed at home in their work from home or home schooling set up (Ordinario, 2020).

The quarantine also reduced consumer mobility by 8% for grocery and pharmacy visits in Metro Manila as of the latest Google mobility report generated for the month of November (Google, 2020). This shows that despite the pandemic, people are still visiting groceries for supplies and essentials. People are also slowly easing into going back to work with businesses and travel slowly re-opening as the quarantine is also being eased up in Metro Manila.

Literature has defined shopping trips under two types, major and fill-in or top up (Kahn & Schmittlein, 1989) (Hunneman, Verhoef, & Sloot, 2017). Major shopping trips are usually done once a week on a preferred schedule which aims to purchase the household's needs. It is often planned, requires more time, effort and a larger spend (Nordfalt, 2009). Major shoppers prefer larger format channels like hypermarkets because of the wide array of merchandise available (Reutterer & Teller, 2009). Fill in or Top up trips usually satisfy urgent needs like when the household suddenly run out of milk (Hunneman, Verhoef, & Sloot, 2017). Top up shopping trip is shorter and shoppers purchase in small quantities. It is also often frequent and less time is spent inside the store (Sorensen, et al., 2017). With this, convenience is an important attribute for top up shoppers and the supermarket as the preferred channel for top up trips (Reutterer & Teller, 2009). Usually, families that are smaller or are from lower socio economic class are more common to do fill in trips (Hunneman, Verhoef, & Sloot, 2017).

Research has shown how shopping behavior has changed driven by changes brought upon by virus outbreaks. During the MERS outbreak in South Korea, literature has shown considerable changes in consumer behavior and expenditures to lessen the risk of the infection as one shops (Jung, Park, Hong, & Hyun, 2016). This is usually driven by fear of acquiring the virus rather than budget constraints. In their study, grocery expenditures made up most of the consumer's spend during the MERS outbreak since these are essentials and cannot be postponed. During the MERS outbreak there was an increase in e-commerce transactions as more people minimized the

risk of exposing themselves with the virus and a significant drop in shopping in traditional channels.

In China, where the virus originated, there was also a drop in supermarket visits from 54% down to 35% at the onset of the COVID-19 outbreak and most consumers switched to online channels (Li, Hallsworth, & Coca-Stefaniak, 2020).

Similar research was done on how household spending was affected by COVID-19 pandemic in the United States (Farrokhnia, Meyer, Pagel, & Yannelis, 2020). During the peak of the pandemic between end February to early March 2020, shoppers increased their spend by up to 40% across a wide range of categories. Shoppers stockpiled on groceries in anticipation of weeks of home quarantine as imposed by the government. As the COVID-19 cases increased, shoppers were less willing to shop inside a grocery store driven by the fear to catch the virus (Grashuis, Skevas, & Segovia, 2020).

In the Philippines, initial study was done in Dumaguete city stating that most Filipinos have experienced losing their jobs or having reduced their sources of income thus resulting in lower purchasing power (Le-Li, Futralan, & Mamhot, 2020). Shoppers also de-prioritized non-essentials to manage.

The independent variable is shopping trip type where most literatures has defined it to be mostly main shop or fill-in/ top up (Kahn & Schmittlein, 1989). The dependent variable is the frequency of visit to the channel and the average spend.

In this study, we will test the null hypothesis that during a pandemic, most shopper's trip type will remain the same (whether their shopping trip type is main shop or fill in) and there will be no change in shopper's frequency of visit and average spend. The alternative hypothesis will be that during a pandemic, most shopper's trip type will change influencing frequency of visit and average spend in the channel.

2. METHODOLOGY

The research study design is an analytical study trying to test a hypothesis and establishing a relationship between the independent and dependent variables.

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The hypothesis was tested using a survey collected during the whole month of November 2020 which was distributed to a representative sample of Filipino grocery shoppers living in Metro Manila. During this time, general community quarantine was in effect in Metro Manila with easing up of travel restrictions, resumption of work and businesses (Esguerra, 2020) (boi.gov.ph, 2020).

Data was collected thru the use of Google Forms using purposive sampling. As a qualifier, survey respondents were screened to be 18 years old and above and should be the main grocery shopper in their family. The questions were divided into five sections asking the following information: demographics, frequency of grocery shopping, shopping trip type, channel choice and their average spend. The questions were written mostly in the Filipino language for easier understanding of the respondents. The Cronbach's Alpha per item are all relatively close to the questionnaire's alpha (which is 0.645), The questionnaire is acceptable and best not to delete any item from the questionnaire.

3. RESULTS AND DISCUSSION

The following section will show the results of the data gathered from the survey of the study and discussion on the analysis of the shopper trip type's influence on frequency and average spend of shoppers during COVID-19 pandemic. A total of 420 respondents answered the questionnaire.

3.1 Frequency of Grocery: Pre-Pandemic

Data showed the statistics of the frequency of grocery visits of the respondents before pandemic. Majority of the respondents at 41.70% do weekly grocery shopping. 31.40% of the respondents do their groceries every 2-3 weeks. 14.30% of the respondents do their groceries monthly. 11.20% of the respondents do their groceries around 2-3 times a week. 0.50% of the respondents do their groceries daily, and the last 1.0% do their groceries outside the mentioned periods. The data validates the research done by Nordfalt (2009), that most major shopping trips are done weekly. The numbers show that most of the respondents are displaying this behavior in purchasing their household needs prior to the pandemic.

3.2 Frequency of Grocery: During Pandemic

Data showed the statistics of the frequency of grocery visit of the respondents during the pandemic. Most of the respondents do their groceries 2-3 times a week with 37.60% of the respondents selected such. 27.60% of the respondents do their groceries weekly. 23.30% of the respondents do their groceries monthly. 8.60% of the respondents do their groceries around 2-3 times a week. 0.50% of the respondents do their groceries daily, and the last 2.40% do their groceries outside the mentioned periods. Here we see a shift on their behavior during the pandemic. Weekly grocery shopping was reduced by 33% but an increase in 2-3 weeks grocery shopping and monthly frequency.

3.3 Budget for Grocery: Pre-Pandemic

Data showed the frequency statistics of the budget of the respondents for grocery before pandemic. Most of the respondents have a grocery budget of PHP 5,000 and above with 26.90% of the respondents selected such. 23.30% of the respondents have a grocery budget of PHP 3,000 – PHP 5,000. 21.90% of the respondents have a grocery budget of PHP 2,000 – PHP 3,000. Respondents with a grocery budget of PHP 1,000 – PHP 2,000 composes 17.40% of the respondents. 8.60% of the respondents have a grocery budget of PHP 500 – PHP 1,000. The last 1.90% of the respondents have a grocery budget of around PHP 300 – PHP 500.

3.4 Budget for Grocery: During Pandemic

Data showed the frequency statistics of the budget of the respondents for grocery during the pandemic. Most of the respondents have a grocery budget of PHP 5,000 and above with 41.20% of the respondents selected such. 23.30% of the respondents have a grocery budget of PHP 3,000 – PHP 5,000. 16.00% of the respondents have a grocery budget of PHP 2,000 – PHP 3,000. Respondents with a grocery budget of PHP 1,000 – PHP 2,000 composes 10.20% of the respondents. 5.50% of the respondents have a grocery budget of PHP 500 – PHP 1,000. 3.30% of the respondents have a grocery budget of around PHP 300 – PHP 500. The other 0.40% composes of respondents with a grocery budget of below PHP 100 and PHP 100 – PHP 300. Due to increase in-home consumption driven by the lock downs (CNN Philippines Staff, 2020), grocery budgets also increased. There was an

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increase in respondents who ticked PHP 5,000 above versus pre-pandemic.

3.5 Shopping Trip Type

Data showed the frequency statistics of the shopping trip type of the respondents. Most of the respondents do the Main shopping trip type with 80.20% of the total respondents selected such. Meanwhile, 19.80% of the respondents are doing the Top Up shopping trip Type. Most shoppers' trip type is mostly main shop where shoppers plan and purchase the majority of the household's needs requiring a much larger spend.

3.6 Location of Grocery: Main Shop

Data showed the frequency statistics on the retail channel where shoppers usually do their main shopping trip type. Most of the respondents do their main shop on supermarkets with 77.90% of the respondents selected such. Meanwhile, 10.20% of the respondents do their groceries online. 6.20% of the respondents do their groceries on Mini mart/Mini Grocery. 5.00% of the respondents do their groceries on Market Stalls. The last 0.60% of the respondents do their groceries on Drug Stores, Mixed Places.

3.7 Location of Grocery: Top Up

Data showed the frequency statistics on the retail channel where shoppers usually do their top up shopping trip type. Most of the respondents do their groceries on supermarkets with 39.80% of the respondents selected such. Meanwhile, 16.70% of the respondents do their groceries on Mini mart/Mini Grocery. 10.50% of the respondents do their groceries on Market Stall. 10.20% of the respondents do their groceries through Online groceries. 9.0% of the respondents do their groceries on Sari-Sari Stores. 6.20% of the respondents do their groceries on Convenience Store, same goes for the drugstore. 1.40% of the respondents do their groceries though other channels.

Supermarket channel remains to be a channel of choice whether the shopping trip type is main shop or top up validating the study of Reutterer & Teller (2009) stating that main shop shoppers prefer larger format channels because of the wide array of assortment.

3.8 Shopper's Frequency Before and During the Pandemic

Data showed the McNemar-Bowker Test on the differences on how frequent shoppers do their groceries before and during the pandemic. With the computed Chi-Square test-statistic value of 42.761, and a P-value of 0.001 which is less than 0.05, we reject the null hypothesis of the test. It can be shown that there are significant changes on how frequent shoppers do their grocery before and after the pandemic.

In the findings, we can see an increase in monthly and 2-3x a week shopping trip versus the grocery weekly shopping trip pre-pandemic. This aligns to the findings of Jung et.al (2016) on the significant drop in spending in traditional retail channels as consumers find it risky to shop during an outbreak. This finding can also be explained by Grashius et.al (2020), that shoppers are generally not keen to shop inside grocery stores in situations where COVID 19 is spreading at an increasing rate.

3.9 Shopper's Grocery Budget Before and During the Pandemic

Data showed the McNemar-Bowker Test on the differences on shoppers grocery budget before and after the pandemic. With the computed Chi-Square test-statistic value of 75.643, and a P-value of 0.001 which is less than 0.05, we reject the null hypothesis of the test. It can be shown that there are significant changes on shoppers' grocery budget before and after the pandemic.

The findings show an increase in Php 5,000 and above spend coming from 26.9% pre-pandemic to 41.2% during the pandemic showing a 53% increase for this average spend type. Those shoppers who spend at around Php 1,000-2,000 pre-pandemic decreased by 41% during pandemic. The data shows how the skewing of average spend moved towards Php 5,000 up indicating an increase of average spend.

3.10 Test of Independence of Shopper's Frequency and their Shopping Trip Type

Data showed the Chi-Square Test of Independence on the relationship of how frequent shoppers do their groceries and their shopping trip

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type. With the computed Chi-Square test-statistic value of 6.852, and a P-value of 0.232 which is greater than 0.05, it can be shown that there is no significant relationship on how frequent shoppers do their grocery with their shopping trip type. These two variables are independent.

3.11 Test of Independence of Shoppers' Budget and their Shopping Trip Type

Data showed the Chi-Square Test of Independence on the relationship of shoppers' grocery budget and their shopping trip type. With the computed Chi-Square test-statistic value of 17.876, and a P-value of 0.001 which is lesser than 0.05, it can be shown that there is a significant relationship on shoppers' grocery budget with their shopping trip type.

This supports the related literature that major shopping trips require a larger spend as it is usually done once a week with the aim of buying the household's needs (Nordfalt, 2009). While fill in or top up trips usually satisfy urgent needs that make shoppers quickly purchase in small quantities (Hunneman, Verhoef, & Sloot, 2017).

4. CONCLUSIONS

The study examined how the pandemic affected the shopper's trip type, average spend and frequency of visit in the channel when buying grocery products.

The alternative hypothesis is accepted stating that during a pandemic, most shopper's trip type will change influencing frequency of visit and average spend in the channel. The results of the study has shown that most shoppers' trip type is main shop where they tend to buy more with a budget of Php5,000 up but visit the channel less frequent at around 2-3x a month. versus their weekly grocery shopping pre-pandemic. According to these shoppers, their preferred channel is supermarket for main shopping. The study has also shown that a shopper's budget has a significant relationship with their shopping trip type. Which validates previous literature that main shop requires higher spending (Nordfalt, 2009) while fill in or top up requires shopping in smaller budgets as they only buy in small

quantities (Hunneman, Verhoef, & Sloot, 2017). Frequency of shopping and shopping trip type are two independent variables and have no significant relationship as answered by the participants during the pandemic.

This finding has several implications for manufacturers and retailers who may use the results to draft their strategies during a pandemic. As shoppers tend to have less trips but more basket size, manufacturers and retailers can think of strategies to make each trip count for the consumer. To compensate for grocery shopping frequency loss, selling strategies can be done to capture the cash and increase average weight of purchase for most essential food categories in the retail channel. Strategies can also be done to drive big pack purchases as shoppers tend to spend more every trip. The research finding also stated that supermarkets continue to be the preferred channel either in main shopping trip type or top up. Possible action point to the manufacturer or to the retailer is to find strategies to increase penetration to smaller, proximity stores that are closer to shopper's homes as mobility lessens during a pandemic.

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6. REFERENCES

- Bautista, D., & Luz Lopez, M. (2020, April 21). CNN. Retrieved from https://cnnphilippines.com/news/2020/4/21/interactive-timeline-PH-handling-COVID-19.html?fbclid=IwAR3oH2HZ138-xHJc3W4dcOwGhfD8gcDnQGxLti-Nqb2-Ka2-e2g_LACqDvk
- boi.gov.ph. (2020). Retrieved from <https://boi.gov.ph/wp-content/uploads/2020/05/GCQ-Guidelines.pdf>
- Carandang, C. (2020, March 12). Interaksyon. Retrieved from

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- <https://interaksyon.philstar.com/rumor-cop/2020/03/12/164036/panic-buying-metro-manila-covid-19/>
- Farrokhnia, R., Meyer, S., Pagel, M., & Yannelis, C. (2020). How Does Household Spending Respond to an Epidemic? Consumption during the 2020 COVID-19 Pandemic. *The Review of Asset Pricing Studies*.
- Google. (2020). Covid-19 Community Mobile Report. Philippines: Google.
- Grashuis, J., Skevas, T., & Segovia, M. (2020). Grocery Shopping Preferences during the COVID-19 Pandemic. *Sustainability*.
- Hunneman, A., Verhoef, P., & Sloot, L. (2017). The Moderating Role of Shopping trip type in store satisfaction formation. *Journal of Business Research*.
- Jung, H., Park, M., Hong, K., & Hyun, E. (2016). The Impact of an Epidemic Outbreak on Consumer Expenditures: An Empirical Assessment for MERS Korea. *Sustainability*.
- Kahn, B., & Schmittlein, D. (1989). The relationship between Purchases made on Promotion and Shopping Trip Behavior. *Journal of Retailing*.
- Le-Li, J., Futralan, G., & Mamhot, A. (2020). Influence of Demographics and Buying Capacity on Consumer Buying Behavior during the COVID-19 pandemic in Dumaguete City, Philippines. *International Journal of Sciences: Basic and Applied Research*.
- Li, J., Hallsworth, A. G., & Coca-Stefaniak, A. (2020). The Changing Grocery Shopping Behavior of Chinese Consumers at the Outset of the COVID-19 Outbreak. *Tijdschrift voor Economische en Sociale Geografie*.
- Negrillo, T. N. (2020). Philippine Information Agency. Retrieved from <https://pia.gov.ph/features/articles/1038775>
- Nordfalt, J. (2009). Unplanned grocery purchases: The influence of the shopping-trip type revisited. *Journal of Consumer Behavior*.
- Ordinario, C. (2020, September 9). *Business Mirror*. Retrieved from <https://businessmirror.com.ph/2020/09/09/nielsen-tracks-covid-era-consumption-patterns/>
- Reutterer, T., & Teller, C. (2009). Store format choice and shopping trip types. *Journal of Retail & Distribution Management*.
- Sorensen, H., Bogomolova, S., Anderson, K., Trinh, G., Sharp, A., Kennedy, R., Wright, M. (2017). Fundamental patterns of in-store shopper behavior Herb Sorensena,. *Journal of Retailing and Consumer Services*.
- Sterman, J. D., & Dogan, G. (2015). "I'm not hoarding, I'm just stocking up before the hoarders get here." Behavioral causes of phantom ordering in supply chains. *Journal of Operations Management*.

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Influencer Persona and Consumer Attitudes as Indices of Purchase Intention: An Assessment of Selected Millennials and Generation Z-ers

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Abstract: The rise of social media also comes with the rise of social media influencers, those who affect people's attitudes and individuals who are paid by brands to promote their products or services on social media. Along with continuously building their name and image through different social media platforms, these social media influencers are using their social capital in starting their brands and entrepreneurial ventures, having the advantage of getting to know their followers and unfulfilled needs has driven social media influencers to create their brand. However, the power of influencer-entrepreneurs to influence consumer purchase intention into their own brand is a combination that has not been delved into deeper yet, as it has always been in relation to their endorsed brands. Hence, this study analyzed how the persona of social media beauty influencer-entrepreneurs, measured through social attractiveness, attitude homophily, parasocial interaction, and trustworthiness, influenced consumer purchase intention while mediated by consumer attitude.

The researchers conducted an online survey, targeting Filipinos aged between 18-35 years old who are followers and consumers of brands established in the past years by beauty influencer-entrepreneurs locally and internationally whose products are available and sold in the Philippines. After analyzing the results using mediation analysis method, the proponents concluded that influencer persona plays a significant role in influencing consumer purchase intention, but is partially mediated by consumer attitude. This translates that influencer persona influences purchase intention, with or without the presence of consumer attitude. Consequently, consumer attitude was deemed significant but does not completely explain purchase intention as influencer persona still has a direct influence to the latter. This research was done to impart knowledge to social media influencers and the business industry about business opportunities that are present in various social media platforms. It also strived to provide social media influencers information on how to improve their relationship with their followers through understanding the factors that could help in making their brand more appealing to their followers.

Key Words: influencer-entrepreneurs; influencer persona; social attractiveness; attitude homophily; parasocial interaction

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1. INTRODUCTION

The rise of Social Media gave way to persons that affects people's attitude and individuals that most are paid to promote products and services on the platform. The growth of these influencers have continuously helped brands strengthen their relationship with consumers (Glucksman, 2017).

Social media is said to be an effective marketing tool to which most of consumer goods companies used it as a strategic platform. In the online marketing space, Digital Marketing Institute (2020) said that the influencers are more trusted by teens (70%) in comparison to traditional celebrity endorsers, with 86% of women rely on social media in terms of purchasing decisions mostly from Facebook and Instagram.

In an article by Gilliland (2016), the writer mentioned that social media marketing has greatly impacted the beauty industry which makes it one of the most benefited industries. Social media continues to play a big role in shaping the beauty industry, it continues to be the driving force for new opportunities and challenges (Valentine, 2019).

Numerous beauty brands have also opted to allocate a big amount of their budget to social media influencer marketing (McKeon, 2020). The rise of beauty influencers have been increasing significantly, noting that they have generated over 169 billion views on Youtube videos alone (Statista, n.d.). Furthermore, in 2014, the beauty industry was revealed to be fourth in terms of the reach of influencers in social media marketing in the United States.

According to MediaKix (n.d.), along with continuously building their name and image through different social media platforms, these social media influencers are using their social capital in starting their brands and entrepreneurial ventures. Influencer entrepreneurs are slowly rising as a new venture given the age of digital media technologies (Abert, Lunderøy & Radmacher, 2019). Having the advantage of getting to know their followers and unfulfilled needs has driven social media influencers to create their brand (Hossain, 2020).

The power to influence consumer purchase

intention and influencer-entrepreneurs is a combination that has not been delved into deeper yet.

Various research has been conducted on social media beauty influencers and their effect on endorsed brands but there is minimal research focused on social media beauty influencer-entrepreneurs and their power to attract consumers to purchase from them. To gain more knowledge about the relationship between social media beauty influencer-entrepreneurs and their followers, the researchers have chosen to look into this topic. The research targeted to study the persona of social media beauty influencer-entrepreneurs, further on referred to as influencer persona, that contributes to the purchase intention of consumers aged 18 - 35 years old from Metro Manila, Philippines to brands owned by these influencers.

1.1 Problem Statement

Can consumer attitudes explain the association between influencer persona and purchase intention?

1.2 Scope and Limitations

The scope of this research mainly focuses on the beauty industry, specifically social media beauty influencer-entrepreneurs who produce and sell their make-up tools such as brushes and sponges and cosmetics products such as eyeshadow palettes, lipsticks, highlighters. These social media influencers must be present on social media platforms such as Facebook, Instagram, and Youtube. This research only includes influencer-entrepreneurs who have started their career as social media influencers online. Celebrities and television personalities who have created their brands are excluded.

1.3 Hypotheses

H1: Influencer persona can predict consumer purchase intention.

H2: Influencer persona has a significant influence on consumer attitudes.

H3: Consumer attitude explains the association between influencer persona and purchase intentions.

2. METHODOLOGY

2.1 Research Locale

In the Philippines, Facebook and Instagram

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are two of the most used social media platforms with 58% and 10% users for each, respectively (Pew Research Center, 2019). 88% of 18-29 years old Filipinos are Facebook users, and also more than half of those aged 30-49 years old are users at 57%.

2.2 Data Analysis Techniques

The causal research design, on the other hand, looked into the effect of the influencer persona on consumer attitude and purchase intention, respectively. Given that a mediating variable is included in this study, the researchers followed the mediation model of Baron and Kenny (1986) and Kenny (2018). It is said that changes in the independent variable may lead to changes to the mediating variables, which in turn affects the dependent variable (MacKinnon et al., 2012). The model by Baron and Kenny (1986) involves four steps in which simple linear regression and multiple linear regression can be utilized in determining the effect of the independent variable, influencer persona, to the mediating and dependent variable, which are consumer attitude and purchase intention, respectively.

The reliability test was conducted on the overall questionnaire, and separately as well for the questions developed per variable. Based on the results obtained from the analysis done through SPSS Statistics, the overall questionnaire resulted in a Cronbach alpha of 0.901, which indicates that the internal consistency of the research instrument is reliable as the alpha is within the range of $\alpha \geq 0.9$, thus indicating an excellent internal consistency. As for the internal consistency of the questions prepared for each variable, namely, influencer persona, consumer attitude, and purchase intention, an alpha of 0.769, 0.886, and 0.770 was obtained respectively.

2.3 Sampling Method

The proponents observed the number of active users present in their respective social media accounts and thereafter gathered a total population of 740 active individuals. A sample size of 260 was then obtained by utilizing Slovin's formula of $n = N/(1+e^2)$, where N presents the corresponding value of the sample size and e as the margin of error, along with a significance level of 95%.

In addition, given the research is quantitative in nature, the research proponents decided to utilize a method of snowball sampling. Glen (2014) defined snowball sampling as a non-probability sampling

method wherein chosen respondents recruit other participants to answer the research instrument. The other participants will then recruit more participants, repeating the same steps until the sample size is reached. This method is convenient to use when it is hard to look for possible respondents. It is important to note, however, that respondents must fall within the age range of 18 - 35 years old, as further discussed in the research locale, and located in Metro Manila in order for their responses to be considered valid and useful for this research. A part of the research instrument that will be used inquiries about the respondents' demographics to ensure that this criterion is met.

3. RESULTS AND DISCUSSION

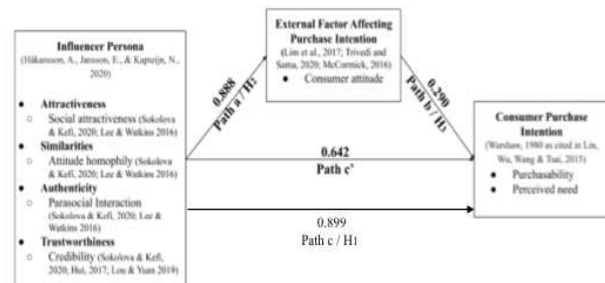


Fig. 1. Conceptual/Operational Framework

It can be seen from the Figure above that influencer persona increased purchase intention by 0.899, while Figure below shows that the same can be concluded, however, only by 0.642. This supported the existence of a partial mediation which according to Baron and Kenny (1986) is concluded when path c' equates to a non-zero-value, in addition to the significance of both p-values. There was a decrease in the impact of influence in the latter relationship due to the presence of the mediating variable, consumer attitude. As a mediating variable, it was influenced by influencer persona by 0.888 and, consequently, affected purchase intention by 0.290. Based on the results from the hypotheses, the ability of influencer persona in predicting consumer purchase intention was significant which led to the rejection of the null hypothesis.

Moreover, from the second hypothesis, influencer persona influencing consumer attitudes resulted in the same conclusion. Lastly, influencer persona also significantly impacts purchase intention with the mediating impact of consumer attitude. The

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following results obtained showed that there is a positive relationship between influencer persona and purchase intention, with or without the presence of consumer attitude. In a way, the results implied that both paths contribute and positively affect in driving consumers to develop the intention to purchase the products from beauty influencer-owned brands.

Table 1. Summary of Hypotheses Results

Hypothesis	Significant/ Insignificant	P-Value	R-Square	Adjusted R-Square
H1: Influencer persona can predict consumer purchase intention.	Significant	< 0.001 Specific: 5.297E-49	0.551	0.549
H2: Influencer persona has a significant influence on consumer attitudes.	Significant	< 0.001 Specific: 3.274E-53	0.582	0.580
H3: Consumer attitude explains the association between influencer persona and purchase intentions.	Significant	< 0.001 Specific: IP: 2.782E-16 CA: 6.989E-06	0.583	0.580

4. CONCLUSIONS

The study utilized four (4) constructs under influencer persona that specified the characteristics that social media beauty influencer are associated with. Based on the data gathered, credibility was exhibited to a fairly good extent with the highest mean value of 4.08. Parasocial interaction and social attractiveness were also demonstrated to a fairly good extent with a mean score of 3.78 and 3.52, respectively. Among the four constructs, attitude homophily accumulated the lowest mean score at 3.31, translating that this characteristic was only exhibited to a moderate extent. Overall, influencer persona was demonstrated to a fairly good extent with a mean score of 3.68.

Can influencer persona predict customer purchase intention?

The regression analysis conducted for these two factors resulted in a p-value of less than 0.001, thus, affirming that influencer persona strongly predicts customer purchase intention. Given this, the research proponents concluded that an influencer-entrepreneur should possess the characteristics of Credibility, Parasocial Interaction, Attitude Homophily, and Social Attractiveness since the results of this study claims that Influencer Persona significantly influences the purchase intention of customers.

Can influencer persona influence consumer

attitudes?

Based on the results gathered and examined through a regression analysis, which resulted in a p-value of less than 0.001, the research proponents deduced that influencer persona has a significant influence on consumer attitude. However, the result also suggests that there are other external factors that can similarly influence the attitude of consumers. The conclusion can be supported by Hossain (2020), wherein the author claimed that influencers have the power in predicting purchase intentions as well as forming the attitude of consumers. Uzunoglu & Klip (2014) and Freberg et al. (2011) also stated that social media influencers are endorsers who have the power to build a certain attitude, perception and behavior of the followers towards brands or products. Furthermore, Forbes (2016), mentioned that the knowledge, expertise and confidence of influencers are some factors that assures consumers when trusting certain brands.

In understanding the relation of influencer persona and consumer attitude to customer purchase intention, a multiple regression analysis was conducted. Based on the results, the r-square value shows that influencer persona and consumer attitude, combined, influences consumer purchase intention by 58.3% while other external factors compose the remaining 41.7%. A p-value of less than 0.001 was also concluded from both influencer persona and consumer attitude in relation to consumer purchase intention deeming that the independent and mediating variables are both significant. The conclusion can be supported by Lim et al (2017), wherein the author concluded that consumer attitude affects purchase intention of customers while Håkansson et al. (2020), claimed that influencers, through the characteristics they possess, contributes to their persuasion effect to customers. Not only do the characteristics of influencers have an affect on the purchase intention of consumers, but their attitude, perception, and behavior towards certain brands are deemed to be factors as well (Uzunoglu & Klip, 2014; Freberg et al., 2011). The researchers, therefore, concluded that influencer persona influences consumer purchase intention, but is partially mediated by consumer attitude. This translates that consumer attitude does not completely explain purchase intention as influencer persona still directly influences the latter when viewed simultaneously through mediation analysis.

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6. REFERENCES

- Abert, M., Lunderøy, M. J., & Radmacher, C. (2019). *New ventures in the age of digital media technologies—A qualitative study of influencer entrepreneurs* (Master's thesis, NordUniversitet).
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Digital Marketing Institute. (2020). 20 influencer marketing statistics that will surprise you. Retrieved from <https://digitalmarketinginstitute.com/en-us/blog/20-influencer-marketing-statistics-that-will-surprise-you>.
- Freberg, K., Graham, K., Mcgaughey, K. & Freberg, L. A. (2011a). Who Are the Social Media Influencers ? A Study of Public Perceptions of Personality, *Public Relations Review*, [e-journal] vol. 37, no. 1, pp.90–92, Available Online: <http://dx.doi.org/10.1016/j.pubrev.2010.11.001>.
- Gilliland, N. (2016, May 25). Seven ways social media is shaping the beauty industry. Retrieved from <https://econsultancy.com/seven-ways-social-media-is-shaping-the-beauty-industry/>.
- Glucksman, M. (2017). The Rise of Social Media Influencer Marketing on Lifestyle Branding: A Case Study of Lucie Fink. *Elon Journal of Undergraduate Research in Communications*, 8(2). Retrieved from https://www.elon.edu/u/academics/communications/journal/wp-content/uploads/sites/153/2017/12/08_Lifestyle_Branding_Glucksman.pdf
- Håkansson, A., Jansson, E., & Kapteijn, N. (2020). The Mystery of Social Media Influencers Influencing Characteristics: An exploratory study on how social media influencers characteristics influence consumer purchase intentions.
- Hossain, T. (2020). From Influencer to Brand: How Social Media Influencers Become Brands. Hu, X., Chen, X., & Davison, R. M. (2019). Social Support, Source Credibility, Social Influence, and Impulsive Purchase Behavior in Social Commerce. *International Journal of Electronic Commerce*, 23(3), 297-327. doi:10.1080/10864415.2019.1619905
- Lee, J. A., & Eastin, M. S. (2020). I like what she's# endorsing: The impact of female social media influencers' perceived sincerity, consumer envy, and product type. *Journal of Interactive Advertising*, 20(1), 76-91.
- Lee, J. E., & Watkins, B. (2016). YouTube vloggers' influence on consumer luxury brand perceptions and intentions. *Journal of Business Research*, 69(12), 5753-5760.
- Lim, X. J., Radzol, A. M., Cheah, J., & Wong, M. W. (2017). The impact of social media influencers on purchase intention and the mediation effect of customer attitude. *Asian Journal of Business Research*, 7(2), 19-36.
- Lin, Y., Lin, F. & Ryan, C. (2014). Tourists' purchase intentions: impact of franchise brand awareness. *The Service Industries Journal*. 34(9-10), 811-827. <https://doi.org/10.1080/02642069.2014.905919>
- Kenny, D. (2018). Mediation. Retrieved from <http://davidakenny.net/cm/mediate.htm>
- MacKinnon, D. P., Cheong, J., & Pirlott, A. G. (2012). Statistical mediation analysis.
- McKeon, R. (2020, July 9). Why Influencer Marketing Prevailed In The Beauty Industry. Retrieved from <https://beautybusinessjournal.com/why-influencer-marketing-prevailed-in-the-beauty-industry/>

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MediaKix (2017, July 20). Social Media Influencers Are Today's Hottest Entrepreneurs. Retrieved from <https://mediakix.com/blog/social-media-influencers-celebrity-business-entrepreneurs/>

Sokolova, K., & Kefi, H. (2020). Instagram and YouTube bloggers promote it, why should I buy? How credibility and parasocial interaction influence purchase intentions. *Journal of Retailing and Consumer Services*, 53.

Uzunoğlu E., Klip M. (2014). Brand Communication Through Digital Influencers. *International Journal of Information Management*, 34 (5), 592–602. DOI: 10.1016/j.ijinfomgt.2014.04.007.

Valentine, O. (2019, July 11). How social media is reshaping the beauty industry.

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Parallel Session D: New Business Creation

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How Do Family Businesses Establish and Orchestrate Familiness? A Multiple Case Study of SMEs in Indonesia

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Abstract: The paradoxical nature of family businesses and their contribution to the global economy are subjects that have become an interest in the literature. In this respect, 'familiness' is argued as one of the critical aspects in family businesses that leads their superior performance. This study aims to explore the forms of familiness and how family businesses orchestrate their familiness to achieve competitive advantage both in their most successful times and the current pandemic situation. This research employs a qualitative approach by using the multiple case study method. Three cases of small- and medium-sized family businesses which operate in different business sectors in Indonesia were purposively chosen. Empirical material were analyzed with the aid of MAXQDA qualitative data analysis software. From the within-case analysis and cross-case analysis, this study found that there are five forms of familiness: legacy, business principles, governance, ownership strategies, and perspectives on non-family employees. The study also found that these forms were orchestrated by interrelating three levels in the family business: business and family, family and individual, and business and individual.

Key Words: family business; familiness; multiple case study; qualitative method, Indonesia

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1. INTRODUCTION

Family business are considered to be the oldest and most dominant form of business organization in the world (Koeberle-Schmid, 2009). Family business or family businesses are the most common form of business around the world (Gedajlovic, 2012). Similarly, The Economist (2015) presents that 90 percent of business across the world are family business. Family businesses are large in number, thus dominating the business form in Indonesia and Southeast Asia. About 95 percent of businesses in Indonesia are family businesses and about 60 percent of business listed on the stock exchange for the Southeast Asian region are family business (PriceWaterhouse Cooper, 2014).

In 2019 and 2020, the business sector was experiencing a decline in performance due to the Covid-19 Pandemic, but anomalies occurred in family business that actually performed outperform during the pandemic. Klerk *et al.*, (2020) in their article stated that family-owned businesses have a sustainable performance compared to non-family owned businesses in each region and sector and family businesses also show signs of greater resilience amid the Covid-19 pandemic. In addition, family-owned business also reduce the number of employees by a smaller number, which is recorded by only 46 percent compared to non-family business, which reached 55 percent. The report also states that during the first six months of 2020, the return on equity from family business is generally 3 percent superior to non-family business, even in Japan the return on equity for family business is superior to 30.1 percent compared to non-family business.

Family business that develop in various parts of the world are mostly family businesses and cannot be separated from the role of the family (Casillas and Pastor, 2015). The big role of the family business comes from the ability of family management in the business to prove that the family business is a competitive business in business competition.

One of the scientific references to see this competitive advantage can be through the resource-based view approach. The resource-based view (RBV) approach developed by Wernerfelt (1984) and Barney (1986) has become a popular approach in the strategic management field that can be used to analyze a company's competitive advantage. The advantages of a family company cannot be separated from the

competitive advantage the company has when the company is able to create more economic value compared to competing business (Barney and Hesterly, 2015). From the strategic management perspective, resources on their own cannot lead to a competitive advantage. A key process is what is known as resource orchestration. Resource orchestration is the managerial actions to configure and reconfigure company resources (Sirmon *et al.*, 2011). Orchestration usually refers to the managerial actions in managing intangible resources.

Habbershon and Williams (1999) stated that the interaction of elements in the family company creates a familiness relationship. Familiness is a special collection of resources for the company that is based on the results of family involvement. The familiness element in a family company is a construct based on a resource-based view (RBV) theory or a resource-based view that is a good approach to understanding the patterns of interaction between elements in family firms (Nordqvist, 2005). Familiness is something unique which is defined as a collection of unique resources and abilities resulting from the results of family and business interactions, leading to wealth creation (Habbershon *et al.*, 2003).

Based on the literature above, this study asks the following research questions: How do family businesses display familiness in their activities? How do family businesses orchestrate their familiness to achieve competitive advantage?

2. METHODOLOGY

This study employs a qualitative approach to explore the forms of familiness and how family businesses orchestrate their familiness. In alignment with Eisenhardt (1989), three cases were chosen for this purpose. They are: The Batik Craft Producer, The Textile Retailer, and The Conglomerate (names are pseudonymized). Data is taken from actors in the family business, especially from families who are directly involved in business operations. Each case was represented by two people as informants in this study. The time period for data collection in this study was taken in June-July 2020. The three cases selected as case studies in this research are family companies that are included in the SME scale. The Batik Craft Producer, The Textile Retailer, and The Conglomerate are SMEs operating in different industries, therefore each of the family companies has uniqueness.

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Semi-structured interview technique was utilized for the data collection process. Data is taken from actors in the family business, especially from families who are directly involved in business operations. Each case was represented by two people as informants in this study (Appendix, Figure 1). The time period for data collection in this study was taken in June-July 2020. The three cases selected as case studies in this research are family companies that are included in the SME scale. The Batik Craft Producer, The Textile Retailer, and The Conglomerate are SMEs operating in different industries, therefore each of the family companies has uniqueness.

In turn, the data were analyzed based on the case study methods outlined by Eisenhardt (1989) and Miles, Huberman, and Saldana (2014). Miles, Huberman and Saldana (2014) mentioned that the data analysis process includes data collection, data condensation, data display, to drawing conclusions/verification. Data analysis software such as MAXQDA helps us in the process of processing interview data. Eisenhardt (1989) also uses within case analysis and cross case analysis (pattern searching) to analyze case study research data.

Ketokivi & Choi (2014) mentioned that there are three case study models: theory generation model, theory testing, and elaboration theory. Accordingly, this study uses the theory elaboration research model. The theory elaboration model has a balanced tendency in terms of the use of theory and empirical context. This research tries to elaborate on the concept of familiness as an important theory in the family business phenomenon and in the empirical context of this research, it analyzes the paradoxical phenomenon in family companies that have a competitive advantage during times of crisis (Covid-19).

3. RESULTS AND DISCUSSION

The forms of familiness that exist in The Batik Craft Producer are techniques and procedures, shared knowledge, decentralization, parental will (tradition), loyalty, and knowledge. The forms of familiness that exist in Textile Retailer are brands, resilience, centralization, parental will (tradition), and loyalty. The forms of familiness that were present in The Conglomerate are brands, persistence, joint responsibility, parental will (tradition), loyalty and authority.

For the familiness orchestration to create a competitive advantage, the interactions in the family businesses consist of three patterns. The first pattern is the relationship between business and family activities that form familiness such as nationalism, professionalism, decentralization, centralization, traditional ownership, modern ownership, brands, and joint-responsibility policy. The second pattern is the relationship between individuals and families that form familiness such as loyalty, knowledge, and authority. The third pattern is the relationship between individuals and businesses that form familiness such as individual pluralism, shared knowledge, resilience, and persistence.

The three cases, i.e., The Batik Craft Producer, The Textile Retailer, and the Conglomerate, show how small- and medium-sized family businesses establish unique sets of resources. Once established, these resources were maintained and strengthened by leveraging the multiple systems in which they were embedded. Familiness has allowed the family businesses to be successful in the past. During the pandemic, familiness allowed them to quickly adapt to the disruption of the operations and markets.

3.1 The Batik Craft Producer

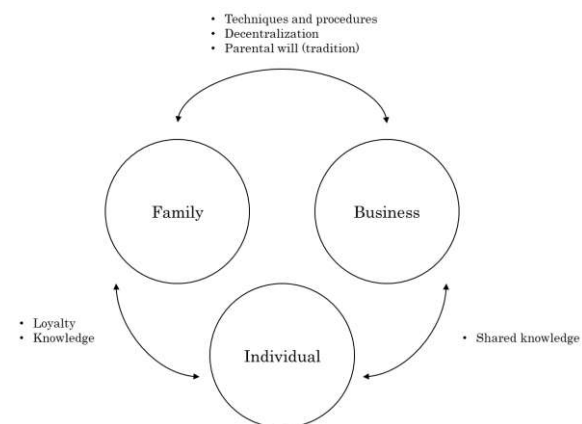


Fig. 1. The Batik Craft Producer Familiness Orchestration

The Batik Craft Producer is a family business that has been around for a long time. This business based on unwritten information has been inherited and continued by the ninth generation, even though currently the eighth generation is the party that still leads de jure, but de facto the ninth generation plays a strategic role and makes decisions more often.

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However, this family business based on written information (formal) has entered the third generation (ninth generation) and the second generation (eighth generation) as the party leading business operations.

Family and business activities in The Batik Craft Producer are the dominant elements. These two elements create familiness in the form of techniques and procedure, decentralization and parental will. Techniques and procedures in this regard are related to legacy (appendix, table 2). Techniques and procedures are legacy from generation to generation and their authenticity is maintained in making the company's superior products (batik). Decentralization leads to decision making in companies. In this case, decentralization is included in the governance aspect (Appendix, Table 2). The second generation has not made many decisions in business. The second generation now deals only with product quality control and new product planning. The second generation plays an important role which is quite a lot of which include providing training for new employees, product marketing and product sales. The delegation of authority becomes a force in following fashion trends in the batik industry. Another aspect that is created by these two elements is parental will. Parental will includes ownership strategies (appendix, table 2). The second generation uses conventional strategies in passing the company's assets and resources to the second generation. The second generation directly provides grants to the next generation. This pattern is a simple pattern, namely a pattern of grants from parents as the old generation granting companies to their children as the next generation. This conventional style keeps the legacy alive and the potential for legal problems to be small.

Family and individual activities give rise to two familiness, namely loyalty and knowledge. The approach taken by the family which considers non-family employees as an important part of the family creates loyalty to employees. Loyalty is included in the perspective of non-family employees (appendix, table 2). Loyalty of The Batik Craft Producer employees is marked by the length of work, some of the employees have worked for a decade. Apart from the length of time they worked, some of the employees were also married to the nuclear family so that in the end all the employees joined the family circle. Another familiness that this activity creates is knowledge. These aspects include perspectives on non-family employees (appendix, table 2). The nuclear family does not mind sharing some secret recipes for making their products

with employees who have worked for a long time or employees who are married to the nuclear family.

Business and individual activities lead to familiness shared knowledge which is included in aspects of Business principles (appendix, table 2). The family and the batik industry around them believe that shared knowledge can enrich the imagination of batik motifs. The company says that its success now comes from free and shared knowledge of the batik industry which allows imitation of the resulting motifs. Copying the batik motifs of other companies in the batik industry is an important source of product innovation.

3.2 The Textile Retailer

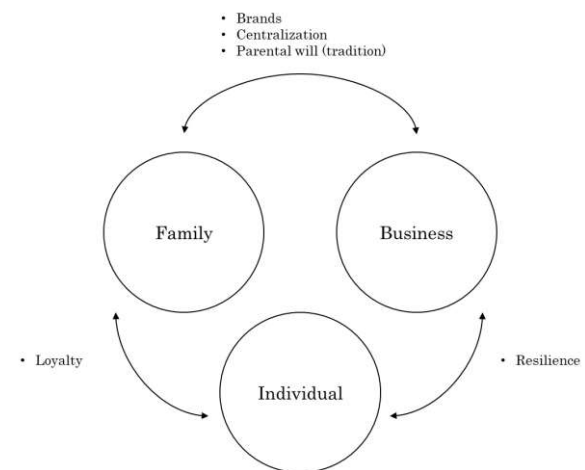


Fig. 2. The Textile Retailer Familiness Orchestration

The Textile Retailer is a long-established company. Currently the leadership is held by the second generation of the three existing generations. The third generation has not contributed much to the company because most of them are still immature and still in school. This company has experienced at least three crises since its establishment in the 60s including the Covid-19 crisis as the latest crisis.

Family and business activities at The Textile Retailer create familiness such as branding, centralization and parental will. Brand in this case is included in the Legacy aspect (appendix, table 2). The name of the company today is a representation of the number of boys that the first generation has. There are five boys born consecutively to give their own meaning to the first generation, which in this case relates them to Javanese philosophy in the world of wayang, namely pandawa lima. With that name until

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now, generation transfer does not only occur within the company but also occurs in customers who remain customers across generations. Another thing is centralization which is included in the governance aspect (appendix, table 2). Centralization in this case is related to corporate decision making which only involves one generation of the two living generations (second and third generation), only the second generation can make decisions so that decision making is faster and seizes opportunities faster. Parental will is included in the aspect of ownership strategies (appendix, table 2). The ownership strategy uses a simple traditional pattern, where parents donate the family company to their children. This makes the acquisition of ownership and leadership run fast and quite stable, especially with regard to legal issues that are not too complicated.

Family and individual activities at The Textile Retailer create familiness in the form of loyalty. Loyalty is included in the perspective of non-family employees (Appendix, Table 2). Employees who work in this company have good loyalty. Loyalty in this case is related to the length of time worked, especially in going through several crises that have hit the company, employees are still loyal to this company. Good family treatment of employees makes employees feel comfortable and satisfied. Families prioritize humanistic aspects and are flexible in making policies related to employees.

Business and individual activities at The Textile Retailer create familiness in the form of resilience. This familiness is included in the business principles aspect (appendix, table 2). The Textile Retailer has a main principle which is resilience. Employees and families work hand in hand to keep company conditions stable even in crisis. The resilience attitude embedded in the company is a compilation of good cooperation between non-family parties (employees) and company leaders who come from families.

3.3 The Conglomerate

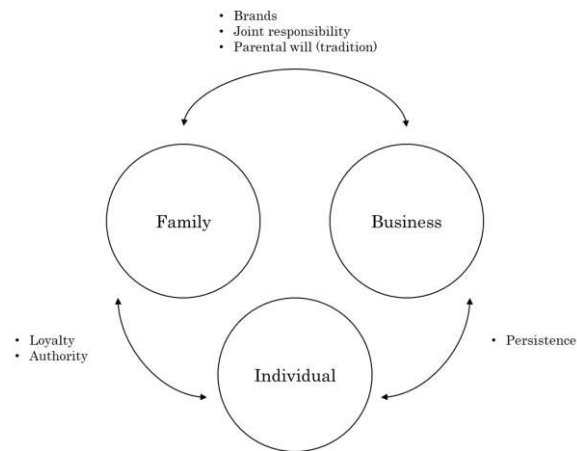


Fig. 3. The Conglomerate Familiness Orchestration

The Conglomerate was founded in the 60's. Initially this company was engaged in agriculture (rice milling) until finally it was able to open other business units with different industries such as agriculture, fisheries, services, medical, refueling, to convenience stores (retail). The cross-industry strategy is currently the key in surviving the Covid-19 pandemic crisis. When one business unit has a problem, other business units can support the shortage. Currently The Conglomerate is controlled by the second generation because the first generation has passed away. There are three generations that exist until now, but the third generation does not run the business, only the second generation runs the business.

Family and business activities in The Conglomerate form three families, namely Brands, Joint Responsibility and Parental Will (Tradition). Brands are included in the familiness legacy aspect (appendix, table 2). The company name used for the parent company includes subsidiaries using the legacy name that was created by the first generation so that The Conglomerate has an advantage in the family brand. The family brand has made it easier for customers to gain trust when a new business unit is formed. Another thing is related to Joint Responsibility, which includes familiness in the governance aspect (Appendix, Table 2). The Joint Responsibility chosen by the company makes a decision-making board consisting of all second-generation family members. This decision-making board makes decisions jointly by prioritizing the

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principle of deliberation and consensus. The existence of a decision-making board makes decision-making time longer but creates fairness and information obtained as a consideration for making better and more complete decisions. Another thing is also related to Parental Will (Tradition) which includes familiness in the aspect of ownership strategies (appendix, table 2). The ownership strategy uses a conventional pattern, namely granting the company from parents to children, making the company condition stable and there are no significant legal problems.

Family and individual activities in The Conglomerate form two familiarities, including loyalty and authority. Loyalty and authority are included in the aspects of familiness perspectives on non-family employees (Appendix, Table 2). The relation, in this case, the employees in this company are treated well by the family who are in the management ranks. The family builds relationships with employees with horizontal characteristics, meaning that employees are considered colleagues, not superiors and subordinates. Because of this, employees are given the authority to make operational decisions (daily/weekly) without having to wait for the family or the decision-making board.

Business and individual activities in The Conglomerate produce familiness in the form of persistence. This familiarity is included in the business principles aspect (appendix, table 2). This principle stems from the first generation who were not businessmen at first. The first generation/founders are employees who work for other people whose short story with persistence (saving and saving on personal financial expenses) managed to buy a rice mill. This behavior is then instilled in the next generation to be able to follow the previous generation in managing the business. It is now proven that this behavior has succeeded in making a family company that started from one industry to become cross-industry and able to withstand the crisis over this multi-industry strategy.

4. CONCLUSIONS

The first conclusion of this study is that there are five forms of *familiness* found from three different family companies. These forms are legacy, principles of doing business, corporate governance, ownership strategy, and non-family employee perspective. The second conclusion is that *familiness* orchestration is the result of the interaction between business, family, and individuals which become the

dominant patterns of interaction in forming familiness. These, in turn, contribute to the competitive advantage of family businesses both in their past successes and in facing the current pandemic challenges.

From our study, we suggest future research on familiness to connect with the growing stream of research on traditions in family business. Familiness is a result of the temporal interactions among the individual, the family, and the business dimensions. By linking this concept with tradition, we may gain insights on familiness not only as a source of competitive advantage but also as a 'burden' that inhibits change and innovation. A question can be proposed, such as "what are the conditions when familiness facilitates (or restricts) change and innovation?"

5. ACKNOWLEDGMENTS

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6. REFERENCES

- Barney, J. B. (July 01, 1986). Organizational Culture: Can It Be a Source of Sustained Competitive Advantage?. *Academy of Management Review*, 11, 3, 656-665.
- Barney, J. B., & Hesterly, W. S. (2015). *Strategic management and competitive advantage concepts*. Harlow: Pearson Education Limited.
- Casillas JC, & Pastor F. (2015). *The Top 250 Multinational Family Firms, Chair of Santander Family Business*. University of Seville (Spain). <http://www.multinationalfamilybusiness.com>
- Eisenhardt, K. M. (October 01, 1989). Building Theories from Case Study Research. *The Academy of Management Review*, 14, 4, 532-550.
- Gedajlovic, E. (2012). *The Adolescence of Family Firm Research: Taking Stock and Planning for*

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the Future. (2012, Vol.38, No.4 (p.1010-1037)). : SAGE Publications.

and Life Cycle Effects. (2011, Vol.37, No.5 (p.1390-1412)). : SAGE Publications.

Habbershon, T. G. (January 01, 2003). A unified systems perspective of family firm performance. *Journal of Business Venturing*, 18, 4, 451-465.

The Economist (2015). *Family Companies - To Have and to Hold / Special Report / The Economist*. http://www.economist.com/sites/default/files/2015_0418_family.pdf.

Habbershon, T., & Williams, M. (January 01, 1999). A Resource-Based Framework for Assessing the Strategic Advantages of Family Firms. *Family Business Review*, 12, 1, 1-25.

Wernerfelt, B. (April 01, 1984). A Resource-Based View of the Firm. *Strategic Management Journal*, 5, 2, 171-180.

Ketokivi, M., & Choi, T. (July 01, 2014). Renaissance of case research as a scientific method. *Journal of Operations Management*, 32, 5, 232-240.

Klerk, Eugene, dan Richard Kersley (2020) *CS Family 1000: Post the Pandemic*. Credit Suisse. <https://bebeez.it/files/2020/09/Family1000.pdf>.

Koerberle-Schmid, A. (2009). *Family Business Governance*. Wiesbaden: Springer Fachmedien.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook*. Los Angeles [etc.]: SAGE.

Nordqvist, M. (May 01, 2005). Familiness in Top Management Teams: Commentary on Ensley and Pearson's "An Exploratory Comparison of the Behavioral Dynamics of Top Management Teams in Family and Nonfamily New Ventures: Cohesion, Conflict, Potency, and Consensus". *Entrepreneurship Theory and Practice*, 29, 3, 285-291.

Price Waterhouse Cooper (2014). *Survey Bisnis Keluarga 2014*. November 2014, no. November: 1-35. <https://www.pwc.com/id/en/publications/assets/in-donesia-report-family-business-survey-2014.pdf>.

Sirmon, D. G. (2011). *Resource Orchestration to Create Competitive Advantage: Breadth, Depth,*

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APPENDIX

Table 1. Informants of the study

Informant	Family firm	Role in family	Gender	Role in business	Language of the Interview
Katura	The Batik Craft Producer	2 nd generation	male	CEO	local language
Septi	The Batik Craft Producer	3 rd generation	female	head of operation	indonesian
Oteng	The Textile Retailer	2 nd generation	male	CEO	indonesian
Dewi	The Textile Retailer	2 nd generation	female	Vice CEO	indonesian
Tasmika	The Conglomerate	2 nd generation	male	Decision-making board	local language
Suk	The Conglomerate	2 nd generation	male	Decision-making board	indonesian

Table 2. Forms of Familiness

Family Firm	Familiness				
	Legacy	Business principles	Governance	Ownership strategies	Perspectives on non-family employees
The Batik Craft Producer	techniques and procedures	shared knowledge	decentralization	parental will (tradition)	loyalty and knowledge
The Textile Retailer	brands	resilience	centralization	parental will (tradition)	loyalty
The Conglomerate	brands	persistence	joint responsibility	parental will (tradition)	loyalty and authority

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New Business Creation in the Philippines: The Role of Individual's Human Capital Towards Entrepreneurship

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Abstract: Economic literature on entrepreneurship sought to underscore the value of human capital in pursuing new business creation, as education and human capital development are purported for individuals to become creative and innovative entrepreneurs. To understand this relationship in the Philippine context, a microeconometric analysis involving the use of two logistic models was used in analyzing data from the Global Entrepreneurship Monitor (GEM) Adult Population Survey (APS) for both the Philippines and Southeast Asia. The study revealed greater explanatory power of the Southeast Asian model than the Philippine model. Although there are factors that affect the likelihood for people to pursue entrepreneurship for both models, a high premium is given to those who have completed post-secondary and higher education as a measure of human capital. In the Philippine context, however, the Philippine constitution and its policy-making bodies have already have inculcated the importance of entrepreneurship among Filipinos and thus, should be seen by Southeast Asian neighbors as collaborators and partners towards promoting profitability and sustainability of their respective enterprises.

Key Words: human capital development; entrepreneurship; logistic regression; education; Global Entrepreneurship Monitor

JEL Classification: C1, C3, C4, C5, D2, F1, H5, I2, I3, J3, M1, O1

1. INTRODUCTION

The Philippines experienced improved levels of economic growth over the years. In the most recent development indicators published in the World Bank database, the country's GDP growth averaged at 5.8% over the past 10 years, registering 6.041% in 2019 (World Bank, n.d.). Still, however, exists widespread poverty in the Philippines, as poverty incidence remains high despite the average of 6% growth in the Philippine economy (Evangelista, 2014). To solve this problem necessitates lowering unemployment and providing decent work for Filipino workers. The World Bank data revealed that from 3.25% in 1991 to as high

as 4.05% in 2006, the unemployment rate made a significant improvement to only 2.52% in 2018. A comparison among Southeast Asian countries revealed that the country's unemployment rate is in the middle of Timor Leste and Viet Nam, with Brunei Darussalam registering a high unemployment rate of 9.22% in 2018, with 5 percentage points higher than Indonesia. Despite manifesting strong economic fundamentals for the past years, unemployment and underemployment in the Philippines have remained and were identified at marginal levels (Lacson, 2018).

The persistent lack of employment opportunities has caused incidences of poverty in

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many parts of the country. As inclusive growth necessitates some form of payback where poor people can taste and realize the benefits of a growing economy, Evangelista (2014) noted that entrepreneurship can help solve this problem through wealth and job creation, and social development.

Article XII, Section 1 of the 1987 Philippine Constitution emphasizes the importance of raising the quality of life of Filipinos. The fundamental law sees supporting equitable income and wealth distribution, as well as promoting sustainability while increasing the productivity of enterprises. Consistently, the Philippine Development Plan (PDP) puts a premium on activities that enhance macroeconomic stability, generate employment, foster trade and investment, promote sectoral reforms through regulations on competition and anticorruption (Evangelista, 2014). Entrepreneurship anchors on Chapter 9 of the PDP (National Economic and Development Authority, 2017) as one of the engines for expanding economic opportunities; thus, accelerating economic growth and inclusive development.

In the Philippine context, the Global Entrepreneurship Monitor (GEM, n.d.) reported that 6.2% of the adult population are identified to have well-established businesses while 18.4% are in the early stages of new business creation, termed as early-stage entrepreneurship (TEA). GEM also noted that the country's TEA rate is far higher than the average for Asia and Oceania, indicating that there is a higher concentration of early-stage entrepreneurs in the country compared to the rest of the region. Although noteworthy, it is interesting to note that the country also has a high discontinuance rate (12.6%) compared to its counterparts in the ASEAN region (4.8%) due to poor profitability and lack of access to capital.

Moreover, GEM reported that almost half of all Filipinos have a very positive view of the entrepreneurial opportunities in their country to improve their financial standing and not just as a mere necessity, with 66% believing in their capabilities to become successful entrepreneurs. Despite this optimistic outlook, almost 90% did not receive formal training and education. It, therefore, posits the need to sustain newly-created businesses by providing opportunities for training to expand their skills in running their businesses.

Entrepreneurship studies that spanned across decades sought to underscore the value of

human capital in pursuing this endeavor of new business creation. First appeared in the work of Mincer (1958, as cited in Marvel, Davis, and Sproul, 2014), the theory of human capital was developed, arguing that such a concept explains the presence of income inequality. To complement this argument, Becker (1964, as cited in Marvel et al., 2014) provided solid evidence using education and skill levels and developed the theory that people who invest in education and skills development have tendencies to earn higher wages than others.

In the realm of entrepreneurship, human capital has been regarded as a theoretical lens (Marvel et al., 2014) that provided scholars with an increased understanding of the creation of new businesses. This is evidenced in the papers of Obisi and Anyim (2012), Harris and Kor (2013), du Plessis (2014), Marvel et al. (2014), Karajic (2015), Malakshah (2017), and Lim (2019), who sought to answer the relationship between human capital and the individual's engagement to entrepreneurship, and as a driver for economic growth (Ehrlich, Li, and Liu, 2017). Chapter 10 of the PDP stresses human capital development for aspiring entrepreneurs. Inspired by the underlying premise of human capital, measured in terms of one's higher education (Iyigun and Owen, 1998, as cited in Lim, 2019) to play an instrumental role to engage in entrepreneurial activities, Lim argued that one's level of higher education can be a measure of human capital development to become an entrepreneur. What, then, is the relationship of these two in the Philippine context, and has it become different compared to Southeast Asia, where does the Philippines belongs? These questions are what this paper seeks to answer.

2. METHODOLOGY

To answer this question, this study employed a microeconomic analysis for a binary outcome of whether an individual will engage or not engage in entrepreneurship based on their level of human capital, measured in terms of higher-level education. For purposes of this study, higher-level education was referred to by Lim (2019) as the completion of secondary education or higher. In this study, we think of the binary outcome, y , as y^* , the propensity of an individual to engage in entrepreneurship. It follows the characteristic of a latent variable where

$$y^* = \alpha + \beta x + \varepsilon \quad (1)$$

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which, for the individual, i , can carry either of the following values:

$$y_i = \begin{cases} 1 & \text{if } y_i^* > \tau \\ 0 & \text{if } y_i^* \leq \tau \end{cases} \quad (2)$$

where τ represents a particular threshold.

Since y_i^* is unobserved, there is a need to determine the parameters of the distribution that best describe the set of data resulting in more robust estimates. Thus, an assumption has to be created about the distribution of errors. Following the study of Lim, a logistic, or logit, model was carried out to compare the direct effect of human capital on an individual's engagement with entrepreneurial activities. Econometric analysis suggests that this model follows a standard logistic distribution of errors (Gujarati and Porter, 2009), and thus, is expressed as:

$$\ln\left(\frac{p_i}{1-p_i}\right) = \sum_{k=0}^n \beta_k x_{ik} \quad (3)$$

where k is the number of regressors and $\left(\frac{p_i}{1-p_i}\right)$ is the odds ratio, representing the quotient of the probability of success (to engage in entrepreneurship) over the probability of failure (not to engage in entrepreneurship). The logit model, then, is the natural log of the odds ratio and uses Maximum Likelihood Estimation (MLE) to estimate β s that maximizes the likelihood function of the sample in response to the need for robust estimates.

Individual-level data for this study were obtained from the 2015 Adult Population Survey (APS) of the Global Entrepreneurship Monitor. According to Lim (2019), the GEM is a result of a project initiated to gather individual perceptions and prevalence of entrepreneurship around the world. The APS data is said to be rich because of how it was conducted. At least 2,000 adults, between 18-64 years old, in each country get to participate through telephone interviews. Because we are comparing both the Philippines and Southeast Asia, this study collated 2,000 observations from the Philippines and

11,303 observations from across the region. The regional respondents came from the Philippines, Malaysia, Indonesia, Viet Nam, and Thailand.

Following Lim (2019), we measured the following variables: for the engagement in new business activity, a binary variable, SUREASONDV, equals 1 if the respondent is actively involved in start-up efforts as the owner for the reason of taking advantage of a business opportunity and not because of the absence of better work choices during the early stages of entrepreneurial activity (McMullen et al. 2008, as cited in Lim, 2019). Second, we also tested whether the individual's human capital affects the creation of new business with characteristics of innovation and competition. This was measured by a binary variable, SUCOMPETDV, which equals 1 if the respondent is involved in a startup that does not have many businesses offering the same product, and of which customers consider product or service as new or unfamiliar, indicating the lack or absence of competition.

In addition, we measured individual-level human capital using a dummy variable that is equal to 1 if the respondent has completed post-secondary or higher education, as the GEM APS data provided information on the respondent's education level (Aidis et al., 2008 and Cooper et al., 1994). For control variables, this study followed the inclusion of gender, age, and age squared (Autio and Ács, 2010). Household income, which has been known to affect engagement in entrepreneurial activities, is a binary variable that equals 1 if a respondent belongs to the upper one-third of his or her country's distribution of annual household income. Work status, which indicates whether the respondent's occupation, was also controlled (Lim, 2019).

In compliance with Rufino (2016) call for computing parameter estimates, descriptive measures, and standard errors, consistent with the nature of the data gathering process, this study used the svyset command of Stata 16 to account for the sampling weights adjusted for respondents ages 18-64 to ensure unbiasedness and consistency of parameter estimates. With the use of logistic regression, this paper expects a more robust estimation process and better interpretation and analysis of inferences.

3. RESULTS AND DISCUSSION

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Descriptive statistics of these datasets (Appendix A) have a mean of almost 1 and have the same standard deviations for age, although the standard deviations for the variables SUREASON and SUCOMPET are higher in the Philippines compared to Southeast Asia collectively. It is consistent with the statistical inference that the variance and standard deviation are smaller when a large sample is used compared to a variance and standard deviation of a smaller sample (Newsom, n.d.)

After declaring the survey by using WEIGHT as the measure of weight and conducting a svydescribe to describe the strata and the sampling units, we proceeded with the conduct of logistic regression analysis for both sets of variables. The strata were identified to be equal to one since it was not mentioned by the GEM about the stratification process of the responses. Still, however, the paper is consistent with the application of svyset. Four models were defined: Model 1 refers to the logistic regression of SUREASON while Model 2 refers to the logistic regression of SUCOMPET. Comparisons, therefore, shall be made between the Philippines (results in Panel 1) and Southeast Asia (results in Panel 2) and inference will be made for the variables of interest with significant p-values.

As for the reasons for pursuing entrepreneurial activities (Appendix B), we interpret the coefficient and the log of the odds ratio for SUREASONDV as follows: For the Philippine (SEA) model, the log odds of becoming an entrepreneur to take advantage of an opportunity is 0.185 (0.518), and thus is 1.20 (1.679) times to become an entrepreneur based on occupation, while those who have household income belonging to top 1/3 in their country increases the log odds of becoming an entrepreneur to take advantage of an opportunity by 0.743 (0.458), with 2.103 (1.581) times more likely to become one. Age and age squared is significant in the Philippine model, implying that a Filipino respondent who increases his/her age by one year increases the log odds of creating a new business to take advantage of an opportunity by 0.1422, making the individual 1.15 times more likely to engage in business opportunity entrepreneurship, although when using age squared, decreases the log odds by 0.0016, thereby reducing the number of times to 1.000.

In the Southeast Asia model, the education variable is significant, implying that those who have

completed post-secondary and higher education increase the log odds of becoming an entrepreneur to take advantage of an opportunity 0.350, or 1.419 times more likely to become one. The marginal effects of these two models (Appendix C) also indicate that the percentage change of these variables ranges from as low as 0.0000% to as high as 12.09% (Philippines) or 5% (Southeast Asia) addition to the odds ratio. Moreover, the model reveals the robustness of the model in terms of the goodness-of-fit in the Southeast Asian model than in the Philippine model (Appendix D).

Concerning the reasons for involvement in new and unfamiliar new business activities (Appendix E), we interpret the coefficient and the log of the odds ratio for SUCOMPET as follows: For the Philippine (SEA) model, the log odds of becoming an entrepreneur to engage in new, unfamiliar, and innovative businesses is 0.184 (.398), or 1.20 (1.489) times more likely based on occupation, while those who have household income belonging to top 1/3 in their country increases the log odds of becoming an entrepreneur to engage in new, unfamiliar, and innovative businesses by 0.838 (0.264), or 2.312 (1.302) times more likely to become one.

In addition, a respondent who increases his/her age by one year increases the log odds of creating a new business to engage in new, unfamiliar, and innovative businesses by 0.502 (.270), or 1.192 (1.310) times more likely, although when using age squared, decreases the log odds by -0.002 (0.001) and becomes an entrepreneur more likely by 0.99 (0.99) times. For Southeast Asia, those who have completed post-secondary and higher education increase the log odds of becoming an entrepreneur to engage in new, unfamiliar, and innovative businesses by 0.389, or 1.475 times more likely to become one. The marginal effects of these two models (Appendix F) also indicate that the percentage change of these variables ranges from as low as 0.0000% to as high as 0.06% addition to the odds ratio. Moreover, the model reveals the robustness of goodness-of-fit in the Southeast Asian model than in the Philippines (Appendix G).

The results imply that greater explanatory power is exhibited in the Southeast Asian model than in the Philippines. Although there are factors that affect the likelihood for people to pursue entrepreneurship for both models, it seems that high premium is given to those who have completed post-secondary and higher education, which, is in

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consonance with prior literature except for Lim (2019) that it is more significant in Indonesia alone than in the region. The results should enable the reader and/or a policymaker: Why is it more Filipinos consider entrepreneurship regardless of their level of education, as opposed to those in the region?

It is noteworthy that the Philippine constitution and its economic policy-making body have inculcated the importance of entrepreneurship among Filipinos regardless of differences in human capital development, measured in terms of higher-level education. Given the traits of Filipinos as people who are very patient, willing, and eager to learn new things, they apply these into their jobs to support their families and eventually create businesses that merit competitive advantage given their use and application of unique ideas and business concepts. We also infer that the innate creativity and resourcefulness (or the "*madiskarte*" trait of Filipinos enables them to become innovative when starting businesses.

The preliminary findings of this study are a wake-up as to what the government and the private sector can do to support entrepreneurship, especially that more Filipinos resort to doing business in light of this Covid-19 pandemic. That is, to create spaces and opportunities where Filipino entrepreneurs can acquire necessary knowledge and skills to ensure that they can sustain the operations of the businesses. Given that the GEM report stated the high discontinuance rate of Filipino startups and new businesses, attention should be given towards building the capacities of Filipino entrepreneurs to promote sustainability of the businesses so that it can be included in the success stories of wealth creation, job creation, and social development.

This, however, should also be complemented by continuous learning and innovation to keep businesses abreast with the changing times, and thus, find ways to promote sustainability in the operations. That is what will enable Filipino entrepreneurs to complement with the Southeast Asian counterparts whom we should no longer look at as competitors, but as collaborators to enable those win-win situations for both Filipino and non-Filipino entrepreneurs. For the promotion of soft skills training, negotiation, and collaboration skills of Filipinos. With the entrepreneurial mindset being built currently in the K-12 program, then the aforementioned skills can be taught already during their internships and college days so that it increases their confidence to work with

potential business partners as they become entrepreneurs.

4. CONCLUSIONS

This paper sought to determine the role of human capital in individual aspirations towards becoming entrepreneurs. As for reasons of becoming an entrepreneur to take advantage of business opportunities, the study concludes that age, occupation, and household income are major predictors in the Philippines, while occupation, household income, and level of higher education are predictors for a binary outcome in Southeast Asia. To become an entrepreneur engaging in new, unfamiliar, and innovative businesses, age, occupation, and household income are major predictors in the Philippines, while all variables including the level of higher education are predictors in Southeast Asia. While there is a greater percentage of change in the addition to the odds ratio in the Philippine model, the goodness-of-fit shows that greater explanatory power is exhibited in the Southeast Asia model.

In the Philippine context, it can be said that Filipinos desire to create wealth, jobs, and social development does not depend largely on human capital and innovation, for it is already considered a physical trait of Filipinos as they strive for innovation and entrepreneurship. With adequate support and entrepreneurial human capital development, Filipino entrepreneurs should be seen by Southeast Asian neighbors as collaborators and partners towards promoting the profitability and sustainability of their respective enterprises. In the era of a knowledge-sharing economy, entrepreneurs that are likely to survive are those who keep on learning, both formal and informal, and to find ways to complement regional partners to maintain the life of their businesses. Human capital development does not only mean the acquisition of knowledge to survive in the industry, but also sharing information to potential partners and collaborators to foster better growth among firms. Perhaps this is already aligned to the business models that are now successful at this time.

Recommendations for further studies are directed to study the propensity of other countries to engage in entrepreneurship given the richness and wide scope of GEM datasets. This move is aimed at establishing cross-country comparisons given the difference in geographical, economic, and other factors that may shape the entrepreneurial culture in these

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areas. In the Philippine case, one may also look further in the differences of entrepreneurial culture in major islands of the country (Luzon, Visayas, and Mindanao) to further add to the existing literature on entrepreneurial behavior and dynamics and the motivation to become entrepreneurs and contribute to the country's economic growth. These studies can provide better inputs towards shaping reforms in entrepreneurship education, research, and practice.

5. REFERENCES

- Aidis, R., Estrin, S., & Mickiewicz, T. (2008). "Institutions and Entrepreneurship Development in Russia: A Comparative Perspective." *Journal of Business Venturing* 23 (6): 656–72.
- Autio, E., and Ács, Z. J. (2010). Institutional influences on strategic entrepreneurial behaviours. *Strategic Entrepreneurship Journal*, 4(3), 234–251.
- Cooper, A. C., Gimeno-Gasco, F. J., & Woo, C. Y. (1994). "Initial Human and Financial Capital as Predictors of New Venture Performance." *Journal of Business Venturing* 9 (5): 371–95.
- Ehrlich, I., Li, D., & Liu, Z. (2017). The role of entrepreneurial human capital as a driver of endogenous economic growth. *Journal of Human Capital*, 11 (3), 310-351.
- Evangelista, R. P. (2014). Entrepreneurship in the Philippines: Opportunities and challenges for inclusive growth. In Center for International Enterprise (ed.), *Creating the environment for entrepreneurial success*. Washington, DC: Center for International Private Enterprise.
- Global Entrepreneurship Monitor. (n.d.) *Adult Population Survey*. [Data file] Retrieved from <https://www.gemconsortium.org/data/sets?id=aps>
- Global Entrepreneurship Monitor. (n.d.) *Entrepreneurship: An emerging career path for Filipinos*. Retrieved from <https://www.gemconsortium.org/economy-profiles/philippines-2>
- Harris, D & Kor, Y. (2013). The Role of Human Capital in Scaling Social Entrepreneurship. *Journal of Management for Global Sustainability* 2, 163-172.
- Karajic, D. (2005). Human capital dimension in entrepreneurship development: Croatian experience. *Economy of eastern Croatia yesterday, today, and tomorrow*, 4, 571-578.
- Lacson, E. (2018, November 16). Jobless growth and poverty. *Daily Tribune*. Retrieved August 23, 2019 from <https://tribune.net.ph/index.php/2018/11/16/jobless-growth-and-poverty/>
- Lim, D. S. K. (2019). *Human capital for micro, small, and medium-sized enterprises (MSMEs) in APEC developing economies: Indonesia*. Canada: Asia Pacific Foundation of Canada.
- Malakshah, A, K. (2017). The effect of education and human resources management on entrepreneurship industry. *International Academic Journal of Business Management*, 4 (2), 19-26.
- Marvel, M., Sproul, C., & Davis, J. (2016). Human capital and entrepreneurship research: A critical review and future directions. *Entrepreneurship: Theory and Practice*, 599-626. doi: 10.1111/etap.12136
- National Economic and Development Authority (2017). *Philippine development plan 2017-2022*. Mandaluyong City, Philippines: Author.
- Newsom, J. (n.d.). Sample size. Retrieved from <http://web.pdx.edu/~newsomj/pa551/lecture4.htm>
- Obisi, C. & Anyim, F. (2012). Developing the human capital for entrepreneurship challenges and successes. *International Journal of Academic Research in Business and Social Sciences*, 2 (3), 128-134.

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Philippine Const. art. XII, § 1.

Rufino, C. (2016). Microeconomic analysis of the eating out behavior of modern Filipino households: The tobit, the craggit, and the heckit models. *DLSU Business and Economics Review*, 26(1), 1-20.

World Bank. (2018). *Making growth work for the poor: A poverty assessment for the Philippines*. Washington, DC: World Bank Group.

World Bank. (n.d.). GDP growth (annual %) [Data file]. Retrieved April 5, 2021 from <https://data.worldbank.org/indicator/ny.gdp.mktp.kd.zg>

World Bank. (n.d.). Unemployment, total (% of total labor force) (modeled ILO estimate) [Data file]. Retrieved April 5, 2021 from <https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS>

Appendix A

Descriptive Statistics for the Philippines and Southeast Asia

Panel A: Philippines

Variable	Obs	Mean	Std. Dev.	Min	Max
ID	2,000	1000.5	577.4946	1	2000
COUNTRY	2,000	63	0	63	63
CTRYALP	0				
WEIGHT	2,000	1.000122	.8955949	.0592164	9.349664
WEIGHT_L	2,000	1	.8954856	.0592091	9.348523
GEMOCCU	2,000	4.066	2.385894	0	7
GEMHHINC	2,000	13558.64	26075.58	0	68100
GEMHHINCD	2,000	.1855	.3887999	0	1
GEMEDUC	2,000	1067.514	455.8679	0	1720
GEMEDUCDV	2,000	.849	.3581384	0	1
SUCOMPET	2,000	.256	.6290166	0	3
SUCOMPETDV	2,000	.062	.2412159	0	1
SUREASON	2,000	.3315	.8619624	0	5
SUREASONDV	2,000	.1465	.3536952	0	1
GENDER	2,000	1.6145	.4868349	1	2
GENDERDV	2,000	.3855	.4868349	0	1
AGE	2,000	37.9095	12.57873	18	64
AGESQRD	2,000	1595.275	1006.309	324	4096

Panel B: Southeast Asia

Variable	Obs	Mean	Std. Dev.	Min	Max
ID	11,303	5652	3263.039	1	11303
COUNTRY	11,303	65.08927	7.947653	60	84
CTRYALP	0				
WEIGHT	11,303	.9962526	.6288931	.0592164	11.99585
WEIGHT_L	11,303	.9999453	.6246573	.0592091	13.03105
GEMOCCU	11,303	4.001504	2.532831	0	7
GEMHHINC	11,303	18898.27	29017.01	0	68100
GEMHHINCD	11,303	.2575422	.4372998	0	1
GEMEDUC	11,303	903.5249	541.534	0	1720
GEMEDUCDV	11,303	.710077	.4537465	0	1
SUCOMPET	11,303	.1769442	.5269344	0	3
SUCOMPETDV	11,303	.0352119	.1843231	0	1
SUREASON	11,303	.2333894	.7194691	0	5
SUREASONDV	11,303	.1118287	.3151695	0	1
GENDER	11,303	1.51765	.4997105	1	2
GENDERDV	11,303	.4823498	.4997105	0	1
AGE	11,303	36.86765	12.47481	0	64
AGESQRD	11,303	1514.83	963.4081	0	4096

Appendix B

Logit and Logistic regression results for SUREASONDV for the Philippines and Southeast Asia

Logit Panel A: Philippines

Survey: Logistic regression

Number of strata	=	1	Number of obs	=	2,000
Number of PSUs	=	283	Population size	=	2,000.2441
			Design df	=	282
			F(6, 277)	=	7.38
			Prob > F	=	0.0000

SUREASONDV	Linearized		t	P> t	[95% Conf. Interval]	
	Coef.	Std. Err.				
GEMOCCU	.1851465	.0455951	4.06	0.000	.0953967	.2748964
GEMHHINCD	.7436667	.2028175	3.67	0.000	.3444383	1.142895
GEMEDUCDV	-.0387911	.2488144	-0.16	0.876	-.5285603	.4509782
GENDERDV	.124948	.212961	0.59	0.558	-.294247	.5441429
AGE	.1422883	.0543508	2.62	0.009	.0353036	.2492731
AGESQRD	-.001605	.0006624	-2.42	0.016	-.0029088	-.0003012
_cons	-5.682355	1.075797	-5.28	0.000	-7.799965	-3.564744

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Logit Panel B: Southeast Asia

Survey: Logistic regression

Number of strata = 1 Number of obs = 11,303
 Number of PSUs = 663 Population size = 11,260.644
 Design df = 662
 F(6, 657) = 66.37
 Prob > F = 0.0000

SUREASONDV	Linearized		t	P> t	[95% Conf. Interval]	
	Coef.	Std. Err.				
GEMOCCU	.5186069	.0330575	15.69	0.000	.4536968	.583517
GEMHHINCD	.4583256	.0771596	5.94	0.000	.3068185	.6098327
GEMEDUCDV	.3502903	.0946783	3.70	0.000	.1643844	.5361962
GENDERDV	.0827303	.1205031	0.69	0.493	-.1538841	.3193447
AGE	.0405613	.0375906	1.08	0.281	-.0332499	.1143726
AGESQRD	-.000612	.0004198	-1.46	0.145	-.0014364	.0002123
_cons	-5.804288	.7105911	-8.17	0.000	-7.199572	-4.409004

Logistic Panel 1: Philippines

Survey: Logistic regression

Number of strata = 1 Number of obs = 2,000
 Number of PSUs = 283 Population size = 2,000.2441
 Design df = 282
 F(6, 277) = 7.38
 Prob > F = 0.0000

SUREASONDV	Odds Ratio	Linearized		t	P> t	[95% Conf. Interval]	
		Std. Err.					
GEMOCCU	1.203395	.0548689	4.06	0.000	1.100095	1.316394	
GEMHHINCD	2.103635	.426654	3.67	0.000	1.411197	3.135834	
GEMEDUCDV	.9619517	.2393474	-0.16	0.876	.589453	1.569847	
GENDERDV	1.13309	.2413039	0.59	0.558	.7450925	1.723131	
AGE	1.152909	.0626615	2.62	0.009	1.035934	1.283092	
AGESQRD	.9983963	.0006613	-2.42	0.016	.9970955	.9996989	
_cons	.0034055	.0036637	-5.28	0.000	.0004097	.0283042	

Note: _cons estimates baseline odds.

Logistic Panel 2: Southeast Asia

Survey: Logistic regression

Number of strata = 1 Number of obs = 11,303
 Number of PSUs = 663 Population size = 11,260.644
 Design df = 662
 F(6, 657) = 66.37
 Prob > F = 0.0000

SUREASONDV	Odds Ratio	Linearized		t	P> t	[95% Conf. Interval]	
		Std. Err.					
GEMOCCU	1.679686	.0555262	15.69	0.000	1.574121	1.792331	
GEMHHINCD	1.581424	.1220221	5.94	0.000	1.359094	1.840123	
GEMEDUCDV	1.41948	.1343939	3.70	0.000	1.178667	1.709492	
GENDERDV	1.086249	.1308964	0.69	0.493	.8573714	1.376226	
AGE	1.041395	.0391467	1.08	0.281	.9672968	1.12117	
AGESQRD	.9993881	.0004196	-1.46	0.145	.9985646	1.000212	
_cons	.0030146	.0021421	-8.17	0.000	.0007469	.0121673	

Note: _cons estimates baseline odds.

Appendix C

Marginal effects for SUREASONDV logistic regression models

Panel 1: Philippines

Marginal effects after svy:logistic
 $y = \text{Pr}(\text{SUREASONDV}) (\text{predict})$
 $= .12091765$

variable	dy/dx	Std. Err.	z	P> z	[95% C.I.]	X
GEMOCCU	.0196804	.00503	3.91	0.000	.009817 .029544	4.03307
GEMHHI-D*	.0951545	.03123	3.05	0.002	.033938 .156371	.168298
GEMEDU-V*	-.0041651	.027	-0.15	0.877	-.057085 .048755	.84198
GENDERDV*	.0132839	.02292	0.58	0.562	-.03163 .058198	.500636
AGE	.0151248	.0057	2.66	0.008	.003962 .026287	35.8595
AGESQRD	-.0001706	.00007	-2.43	0.015	-.000308 -.000033	1436.52

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Panel 2: Southeast Asia

Marginal effects after svy:logistic
 $y = \text{Pr}(\text{SUREASONDV}) (\text{predict})$
 $= .05833651$

variable	dy/dx	Std. Err.	z	P> z	[95% C.I.]	X
GEMOCCU	.0284888	.00131	21.72	0.000	.025918 .03106	3.94722
GEMHHI-D*	.0280509	.00586	4.78	0.000	.016559 .039543	.244792
GEMEDU-V*	.0180375	.0047	3.84	0.000	.008831 .027245	.719397
GENDERDV*	.0045452	.00669	0.68	0.497	-.008574 .017665	.500926
AGE	.0022282	.00213	1.05	0.295	-.00194 .006396	36.5038
AGESQRD	-.0000336	.00002	-1.40	0.162	-.000081 .000014	1487.59

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Appendix D

Goodness-of-fit results for SUREASONDV

Panel 1: Philippines

Logistic model for SUREASONDV, goodness-of-fit test

F(9,274) = 1.64
 Prob > F = 0.1029

Panel 2: Southeast Asia

Logistic model for SUREASONDV, goodness-of-fit test

F(9,654) = 54.88
 Prob > F = 0.0000

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Appendix E

Logit and logistic regression results for SUCOMPETDV for the Philippines and Southeast Asia

Logit Panel 1: Philippines

Survey: Logistic regression

Number of strata = 1 Number of obs = 2,000
 Number of PSUs = 283 Population size = 2,000.2441
 Design df = 282
 F(6, 277) = 4.91
 Prob > F = 0.0001

SUCOMPETDV	Linearized				
	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
GEMOCCU	.1848312	.0600711	3.08	0.002	.0665864 .3030759
GEMHHINCD	.8383048	.2846994	2.94	0.004	.2778991 1.398711
GEMEDUCDV	.0945859	.2941553	0.32	0.748	-.4844329 .6736047
GENDERDV	.5025022	.2864366	1.75	0.080	-.061323 1.066327
AGE	.1759404	.0824103	2.13	0.034	.013723 .3381578
AGESQRD	-.002205	.0010509	-2.10	0.037	-.0042737 -.0001364
_cons	-7.139165	1.622317	-4.40	0.000	-10.33255 -3.945777

Logit Panel 2: Southeast Asia

Survey: Logistic regression

Number of strata = 1 Number of obs = 11,303
 Number of PSUs = 663 Population size = 11,260.644
 Design df = 662
 F(6, 657) = 30.13
 Prob > F = 0.0000

SUCOMPETDV	Linearized				
	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
GEMOCCU	.3985989	.0445223	8.95	0.000	.311177 .4860209
GEMHHINCD	.2645862	.141277	1.87	0.062	-.0128187 .5419912
GEMEDUCDV	.3893017	.1480656	2.63	0.009	.098567 .6800365
GENDERDV	.2700949	.1396856	1.93	0.054	-.0041853 .544375
AGE	.0833049	.0337907	2.47	0.014	.016955 .1496548
AGESQRD	-.0012057	.0004486	-2.69	0.007	-.0020865 -.0003248
_cons	-7.068992	.5718242	-12.36	0.000	-8.191799 -5.946184

Logistic Panel 1: Philippines

Survey: Logistic regression

Number of strata = 1 Number of obs = 2,000
 Number of PSUs = 283 Population size = 2,000.2441
 Design df = 282
 F(6, 277) = 4.91
 Prob > F = 0.0001

SUCOMPETDV	Linearized				
	Odds Ratio	Std. Err.	t	P> t	[95% Conf. Interval]
GEMOCCU	1.203015	.0722665	3.08	0.002	1.068853 1.354017
GEMHHINCD	2.312444	.6583514	2.94	0.004	1.320353 4.049974
GEMEDUCDV	1.099204	.3233365	0.32	0.748	.6160465 1.961294
GENDERDV	1.652852	.4734372	1.75	0.080	.9405194 2.904692
AGE	1.192367	.0982633	2.13	0.034	1.013818 1.402362
AGESQRD	.9977974	.0010486	-2.10	0.037	.9957355 .9998636
_cons	.0007934	.0012872	-4.40	0.000	.0000326 .0193362

Note: _cons estimates baseline odds.

Logistic Panel 2: Southeast Asia

Survey: Logistic regression

Number of strata = 1 Number of obs = 11,303
 Number of PSUs = 663 Population size = 11,260.644
 Design df = 662
 F(6, 657) = 30.13
 Prob > F = 0.0000

SUCOMPETDV	Linearized				
	Odds Ratio	Std. Err.	t	P> t	[95% Conf. Interval]
GEMOCCU	1.489736	.0663265	8.95	0.000	1.365031 1.625834
GEMHHINCD	1.302892	.1840686	1.87	0.062	1.3207631 1.719427
GEMEDUCDV	1.47595	.2185374	2.63	0.009	1.103588 1.97395
GENDERDV	1.310089	.1830005	1.93	0.054	.9958235 1.723531
AGE	1.086873	.0367262	2.47	0.014	1.0171 1.161433
AGESQRD	.9987951	.0004481	-2.69	0.007	.9979157 .9996752
_cons	.0008511	.0004867	-12.36	0.000	.0002769 .0026158

Note: _cons estimates baseline odds.

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Appendix F

Marginal effects for SUCOMPETDV logistic regression models

Panel 1: Philippines

Marginal effects after svy:logistic
y = Pr(SUCOMPETDV) (predict)
= .0584216

variable	dy/dx	Std. Err.	z	P> z	[95% C.I.]	X
GEMOCCU	.0101673	.00331	3.07	0.002	.003684	.01665	4.03307	
GEMHHI-D*	.0596671	.0251	2.38	0.017	.010467	.108868	.168298	
GEMEDU-V*	.0050575	.01532	0.33	0.741	-.024968	.035083	.84198	
GENDERDV*	.0278286	.0169	1.65	0.100	-.005297	.060954	.500636	
AGE	.0096782	.00465	2.08	0.038	.000556	.018801	35.8595	
AGESQRD	-.0001213	.00006	-2.03	0.042	-.000238	-4.1e-06	1436.52	

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Panel 2: Southeast Asia

Marginal effects after svy:logistic
y = Pr(SUCOMPETDV) (predict)
= .02257515

variable	dy/dx	Std. Err.	z	P> z	[95% C.I.]	X
GEMOCCU	.0087953	.00063	14.04	0.000	.007567	.010023	3.94722	
GEMHHI-D*	.006242	.00357	1.75	0.080	-.000753	.013237	.244792	
GEMEDU-V*	.0079601	.003	2.66	0.008	.002087	.013833	.719397	
GENDERDV*	.0059741	.00328	1.82	0.068	-.000451	.012399	.500926	
AGE	.0018382	.00082	2.25	0.025	.000235	.003441	36.5038	
AGESQRD	-.0000266	.00001	-2.43	0.015	-.000048	-5.2e-06	1487.59	

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Appendix G

Goodness-of-fit results for SUCOMPETDV

Panel 1: Philippines

Logistic model for SUCOMPETDV, goodness-of-fit test

F(9,274) = 0.97
Prob > F = 0.4611

Panel 2: Southeast Asia

Logistic model for SUCOMPETDV, goodness-of-fit test

F(9,654) = 8.71
Prob > F = 0.0000

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The Radical Resource-Based View of Student Social Startups and the Moderating Effect of Culture on Social Impact

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Abstract: Social entrepreneurs are guided by their ethical commitment and duty to help others and challenged to start an economically viable and sustainable enterprise through the acquisition of valuable resources and enabling capabilities. However, many of these social enterprises failed to address broad socio-economic problems and their level of social impact is low. This paper aims to investigate the link between resources and capabilities of student social startups of Mindanao State University-Iligan Institute of Technology using Radical approach of Resource Based View (RBV) towards scale of social impact (SSI) and the moderating effect of stewardship culture. Results showed that stakeholder engagement (SE), government support (GS), and earned income generation (EIG) significantly predicted SSI. Furthermore, stewardship culture moderated the relationship between SE and SSI. Majority of the social responsibility issues identified in this study were employment opportunities related, followed by environmental issues and women empowerment, which may be addressed through student startups at the university level. Given that stakeholder engagement is proven to be the most important ability to amplify social impact, student startups can maximize this valuable resource to rally more stakeholders, particularly the government sector, and engage them to bring social change they have aspired as part of their ethical commitment

Key Words: Resource Based View; Social Impact; Student Startups; Stewardship Culture; Social Entrepreneurship

1. INTRODUCTION

Social entrepreneurs are expected to be guided by an ethical commitment and duty to help other people (Pless, 2012). Shaped by their ethical, moral values, and social vision, they are compelled to start their social enterprises and become agents of change (Bacq et al., 2016; Nga & Shamuganathan, 2010). They are challenged to bring fundamental social change and transformation (Zhang & Swanson, 2013). Unfortunately, most social enterprises lack valuable resources because their social mission prevents them to give up attractive financial gains to

reach wider beneficiaries (Desa & Basu, 2013). Consequently, many of these social enterprises failed to address broad socio-economic problems and their level of social impact is low (Renko, 2013; Smith et al., 2016).

Early literature appeals to focus on the internal aspect of the enterprise to understand their capabilities leading to social impact (Litz, 1996), however, few studies used resource-based view (RBV) to investigate social enterprises' scale of impact. Using the RBV lens, social enterprises' scale of impact is dependent on their ability to build, combine and apply valuable resources and enabling know-how, hence

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RBV offers a framework to amplify their ability to serve their market effectively through these identified resources and capabilities (Desa & Basu, 2013). As suggested by Bacq & Eddleston (2016), rather than focusing on the financial performance in gaining competitive advantage, it is better to take the Radical RBV approach (Bell & Dyck, 2011) and focus on the enterprise's ability to attain social impact through cooperation. The goal of Radical RBV is to rescind the materialist-individualist underlying assumptions in the moral-point-of-view and retain the basics of creating and sustaining advantage (Bell & Dyck, 2011). Bacq & Eddleston (2016) also proposed that stewardship culture improves social enterprise's capabilities to scale social impact. Stewardship culture befits as an important resource to entrepreneurial firms (Zahra et al., 2008).

This paper aims to investigate the link between resources and capabilities of student social startups using Radical RBV towards social impact. Specifically, this paper would like to test if stakeholder engagement (SE), government support (GS), earned income generation (EIG), and leadership (LEAD), as essential resources and capabilities of a student social startup, predict social impact. Furthermore, this study investigates the moderating effect of entrepreneurship-centered stewardship culture (SC), between these resources and capabilities and social impact.

The results will show that the capabilities to engage stakeholders, attract government support, generate earned income, and leadership are positively related to the scale of social impact. Moreover, this paper will also show that stewardship culture enhances the effectiveness of these capabilities in attaining social impact. Unlike majority of most RBV social entrepreneurship-related studies that cover wider scope, this study will focus on the student social startups of a single university. Since the study is employing cross-sectional and descriptive design using the quantitative method, results may be valid for this particular time only and may change over time. The analysis of the identified capabilities and the social impact is limited to a quantitative perspective only

2. METHODOLOGY

2.1 Data and Sample

This paper made use of student social startups as its study population, particularly the Entrep 197 Practicum course, which is the terminal output of the BSBA-Entrepreneurial Marketing graduates of the Department of Marketing, College of Business Administration and Accountancy (CBAA), Mindanao State University-Iligan Institute of Technology (MSU-IIT). Guided with the mission of the college to provide an excellent learning environment for future entrepreneurs who can contribute to the sustainable development of the country, the program underwent revisions to promote social impact and sustainability. Starting academic year 2014-2015, student startups of the Entrep 197 Practicum course were adopting social entrepreneurship. Since then, a total of 238 students have undergone the Entrep 197 Practicum course. And using the stratified sampling technique, students were emailed and invited to participate in the online survey resulting to a 53% response rate.

2.2 Measures

All constructs were measured using 5-point Likert-type empirically validated scales adopted from the literature. The Stakeholder Engagement, Government Support, Earned Income Generation and Scale of Social Impact variables were adopted from the works of Bloom & Smith (2010), in which respondents were asked the extent to which they agree with the given statements using 1 = 'strongly disagree' and 5 = 'strongly agree'. The Leadership variable was adopted from the works of Prajogo & Ahmed (2006) while the Stewardship Culture was adopted from the two scales proposed by Zahra et al. (2008) using 1 = 'not at all' to 5 = 'to an extreme extent' range. The Cronbach's alpha of the instrument was 0.902, which is above the usual 0.70 threshold (Taber, 2017), indicating high reliability. Data were then analyzed using descriptive and inferential statistics.

3. RESULTS AND DISCUSSION

The regression analysis requires certain assumptions to be met to ensure the robustness of results. The Shapiro-Wilk test ($W=.964$) indicated a

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normal model while the misspecification test showed no single predictor was left out in the model. (RESET=1.762, p=.092). Further, the Durbin-Watson revealed that the model did not have first-order autocorrelation problem (DW = 1.88, p=.245) and the variance inflation factor (VIF) values, as indicated in Table 1, were along the acceptable 1 to 4 values, indicating that there is no multicollinearity between explanatory variables.

The results of the regression analysis indicated that the main predictors, SE, GS, and EIG explained 64.9% of the variance (R²=.649, F(4,121)=55.5, p<.001) all other things held constant. Furthermore, it was found that SE (H1) significantly predicted SSI (β =.355, p<.001) as well as GS (H2) (β =.173, p=.002) and EIG (H3) (β =.335, p<.001) supporting the work of Bacq & Eddleston (2016). However, LEAD (H4) did not significantly predict SSI (β =.171, p=.094).

Table 1. Model Coefficients - SSI

Predictor	β	<i>p</i>	VIF
Intercept	-0.129	0.670	
SE	0.355	<.001	2.60
GS	0.173	0.002	1.48
EIG	0.335	<.001	1.89
LEAD	0.171	0.094	2.31
Shapiro-Wilk	0.964		
Durbin-Watson	1.88		
RESET	1.762		
R ²	0.649		
<i>p</i>	<.001		

Note * *p* < .05, ** *p* < .01, *** *p* < .001

Muralidharan & Pathak (2019) argued that there is a little linkage between entrepreneurship and leadership research, which may possibly explain why leadership in this study did not predict the scale of social impact. In an earlier work, they found out that social entrepreneurial activities in environments where sustainability is low, there is a need to have strong transformational leadership (Muralidharan & Pathak, 2018). It is important to note that the student social startups in this study operate less than a year (M=0.742, SD=0.328) implying that sustainability is low. On the other hand, other studies have pointed out the significant relationship of leadership on social entrepreneurship and social value (Naderi et al., 2019; Suryandharu et al., 2019).

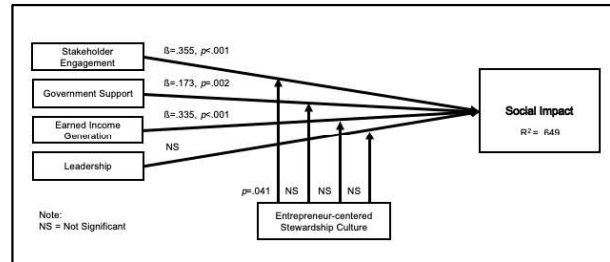


Fig. 1. Model Summary

Using the Radical RBV lens, SE, GS, and EIG, as resources should enhance the social startups' stakeholders overall well-being, especially their adopted communities. The exploitation of these resources enable the startups to deliver value and address social problems. In this study, the social issues that these startups aim to address include employment opportunities (62.4%), environmental issues (14.4%), women empowerment, specifically additional income opportunities (9.6%), and among other issues (13.6%) such as preservation of cultural heritage (weaving and halal), green consumption and out-of-school youth income opportunities. These social responsibility issues may be addressed through startups. Many universities have set up technology business incubators (TBIs) to promote startups within their backyards (Link & Scott, 2017).

In this study, the most important resource and ability to amplify social impact among student social startups is stakeholder engagement, which is quite evident (β = .355, *p* < .001). The second ability, earned income generation, is quite evident as well (β = .335, *p* < .001). While the last important resource is government support, which is moderately evident (β = .173, *p* = .002). This implies that to intensify the startups' social impact, they need to maximize their abilities to communicate and engage their stakeholders and generate more revenue sources to become self-reliant to effectively manage their operations and contribute to the well-being of their stakeholders. Moreover, startups should take advantage of available government programs and services such as financial and technical assistance, to increase social impact. Some of these programs and services can be availed inside the university through technology business incubators, state-of-the-art laboratories, *negosyo* center, and a diverse knowledge and expert network.

Table 2. Moderation Estimates - SSI

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Moderator	β	p
SE x Stewardship Culture	0.105	0.041
GS x Stewardship Culture	-0.0425	0.523
EIG x Stewardship Culture	0.0714	0.205
LEAD x Stewardship Culture	0.0457	0.486

One of the objectives of this study is to analyze the moderating effect of stewardship culture (SC). The moderated regression analysis following the works of Baron & Kenny (1986), indicated that among the significant resources and abilities to scale impact, SC moderated the relationship between stakeholder engagement and SSI. Results showed that stakeholder engagement has a positive effect on SSI. Similarly, stewardship culture has also a positive effect on SSI and since the interaction indicated a positive effect, it implies that SC enhanced the effect of stakeholder engagement to SSI. However, when compared with other predictors such as GS, EIG, and LEAD, culture failed to elicit moderated relationship.

4. CONCLUSIONS

Using the Radical RBV lens, this paper explored the link between resources and capabilities, particularly stakeholder engagement (SE), government support (GS), earned income generation (EIG), and leadership (LEAD), of student social startups towards social impact and the moderating effect of stewardship culture. The main findings of the study revealed that the main variables, SE, GS, and EIG significantly predicted SSI all other things held constant. While LEAD failed to elicit meaningful relationship. Further, among the variables studied, stewardship culture (SC) moderated the relationship exclusively on SE with a positive effect on SSI, implying that SC enhanced the effect of SE on SSI.

Majority of the social responsibility issues identified in this study were employment opportunities related, followed by environmental issues and women empowerment, which may be addressed through student startups at the university level. Given that stakeholder engagement is proven to be the most important ability to amplify social impact, student startups can maximize this important resource to rally more stakeholders and engage them to bring social change they have aspired as part of their ethical commitment. On the other hand, this

study offers practical implications to government agencies and university offices alike to target and strengthen their programs and services catering to their clients, including students. They need to streamline the process and requirements to increase student patronage. Target promotion of the student-related programs and services is also an important way of extending them to students.

To capture impact and ensure in-depth analysis of the identified capabilities, future studies should investigate mature social startups using a longitudinal approach with a control group for comparison and better results. Future studies should also refine the leadership variable attuned to social entrepreneurship such as creative leadership or transformational leadership.

5. REFERENCES

- Bacq, S., & Eddleston, K. A. (2016). A resource-based view of social entrepreneurship: How stewardship culture benefits scale of social impact. *Journal of Business Ethics, 152*(3), 589–611.
- Bacq, S., Hartog, C., & Hoogendoorn, B. (2016). Beyond the moral portrayal of social entrepreneurs: An empirical approach to who they are and what drives them. *Journal of Business Ethics, 133*(4), 703–718.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182.
- Bell, G. G., & Dyck, B. (2011). Conventional resource-based theory and its radical alternative: A less materialist-individualist approach to strategy. *Journal of Business Ethics, 99*(SUPPL. 1), 121–130.
- Bloom, P. N., & Smith, B. R. (2010). Identifying the drivers of social entrepreneurial impact: Theoretical development and an exploratory empirical test of SCALERS. *Journal of Social Entrepreneurship, 1*(1), 126–145.

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- Desa, G., & Basu, S. (2013). Optimization or bricolage? Overcoming resource constraints in global social entrepreneurship. *Strategic Entrepreneurship Journal*, 7, 26–49.
- Link, A. N., & Scott, J. T. (2017). U.S. science parks: The diffusion of an innovation and its effects on the academic missions of universities. *Universities and the Entrepreneurial Ecosystem*, 21, 3–36.
- Litz, R. A. (1996). A resource-based-view of the socially responsible firm: Stakeholder interdependence, ethical awareness, and issue responsiveness as strategic assets. *Journal of Business Ethics*, 15(12), 1355–1363.
- Muralidharan, E., & Pathak, S. (2018). Sustainability, transformational leadership, and social entrepreneurship. *Sustainability (Switzerland)*, 10(2), 1–22.
- Muralidharan, E., & Pathak, S. (2019). Consequences of cultural leadership styles for social entrepreneurship: A theoretical framework. *Sustainability (Switzerland)*, 11(4), 1–19.
- Naderi, A., Nasrolahi Vosta, L., Ebrahimi, A., & Jalilvand, M. R. (2019). The contributions of social entrepreneurship and transformational leadership to performance: Insights from rural tourism in Iran. *International Journal of Sociology and Social Policy*, 39(9–10), 719–737.
- Nga, J. K., & Shamuganathan, G. (2010). The influence of personality traits and demographic factors on social entrepreneurship start up intentions. *Journal of Business Ethics*, 95(2), 259–282.
- Pless, N. M. (2012). Social entrepreneurship in theory and practice-An ntroduction. *Journal of Business Ethics*, 111(3), 317–320.
- Prajogo, D. I., & Ahmed, P. K. (2006). Relationships between innovation stimulus, innovation capacity, and innovation performance. *R and D Management*, 36(5), 499–515.
- Renko, M. (2013). Early challenges of nascent social entrepreneurs. *Entrepreneurship: Theory and Practice*, 37(5), 1045–1069.
- Smith, B. R., Kistruck, G. M., & Cannatelli, B. (2016). The impact of moral intensity and desire for control on scaling decisions in social entrepreneurship. *Journal of Business Ethics*, 133(4), 677–689.
- Suryandharu, T., Sanusi, A., & Harsono, H. (2019). The Influence of the motivation, leadership and social networking for the formation of social entrepreneurship. *International Journal of Advances in Social and Economics*, 1(1), 6.
- Taber, K. S. (2017). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, 48(6), 1273–1296.
- Zahra, S., Hayton, J., Neubaum, D., Dibrell, C., & Craig, J. (2008). Culture of family commitment and strategic flexibility: The moderating effect of stewardship. *Entrepreneurship: Theory and Practice*, 612, 1035–1055.
- Zhang, D., & Swanson, L. A. (2013). Social entrepreneurship in nonprofit organizations: An empirical investigation of the synergy between social and business objectives. *Journal of Nonprofit and Public Sector Marketing*, 25(1), 105–125.

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Parallel Session E: Sustainability and Corporate Social Responsibility

Conference theme: "Enabling the Transformation of Resilient Business Environment and Innovation Ecosystem in the ASEAN"

Prediction Model of Sustainability Practices on the Financial Performance of Philippine Rural Banks

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Abstract: This study examined the relationship of sustainable banking practices of selected rural banks in the Philippines and their financial performance. The following theories formed the theoretical underpinnings of this study: Business Banking Model for Sustainability, Stakeholder's Theory, Resource-Based Theory and Financial Management Theory (CAMELS model). Sustainable banking applies to the flow of sustainable goods and services that are designed to satisfy people's needs and to protect the environment while generating revenue. Using multiple regression analysis, the study revealed that bank capital, loan portfolio, and sustainable environmental banking practices significantly contribute to improved financial performance. Although the other two dimensions; namely economic and social dimensions are greatly practiced by rural banks, their effect on financial performance was not significant. Survey data were gathered from 80 participating rural banks operating in the Philippines. Implications for the management of sustainability efforts of rural banks were drawn as well as areas for further research were proposed.

Key Words: sustainable banking practices; sustainability; prediction model; financial performance; rural banks

1. INTRODUCTION

Today's Philippine rural banking industry is facing the opportunities and challenges of integrating sustainable banking practices in its operations to contribute to ASEAN sustainable development goals. According to Yip and Bocken (2018), sustainable banking refers to delivering financial products and services that are developed to meet the needs of the people and safeguard the environment while generating profit. Business models for sustainability can be useful for creating "systems change" Bocken and Short (2015) cited in Yip and Bocken (2018). For its theoretical framework, the study made use of an integrated framework comprised of the Banking Business Model for Sustainability; the Stakeholder's Theory; the Natural Resource-Based Theory; and the

Financial Management Theory, specifically, the CAMELS model.

A meta-analysis review using content analysis done by Alshehhi, Nobanee and Khare (2018) on the impact of sustainability practices and financial performance revealed that an overwhelming positive relationship (78% of the 132 short listed publications from top tier journals) exists between corporate sustainability practices and financial performance. A minority of literature reports a negative or mixed relationship, or reports no significant relationship. They concluded that there is a need to examine the impact of three dimensions of sustainability; namely social, economic and environmental, and to firmly establish the combined effect of all these three dimensions to financial performance. A similar positive relationship was established between

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sustainable operations practices and performance as determined by D'Agostini, Tondolo, Camargo, Dos Santos, Dullius, Tondolo, and Russo (2017) in their meta-analysis of 37 articles expanding the relationship of practices to performance.

The integration of sustainability aspects into banking regulations, both domestically and internationally, could be a stable driver for developing a sustainable economy (Oyegunle and Weber, 2015). Companies now are expected to go beyond the narrow and short-term financial focus, and expand into an encompassing economic, environmental, and social sustainability. Designing a strong business strategy is becoming increasingly dependent on how well a company or in this case a bank can position itself in terms of sustainable development that balances all three dimensions of sustainability: economic, environmental, and social development. The body of literature though around this subject is far from mature. While most reviews focus on a single or a combination of two dimensions of sustainability, those that focus on all three dimensions are rare. Single-dimension reviews tend to be mostly about the environmental dimension, and do not serve as a comprehensive approach to all three dimensions of sustainability (Alshehhi, et al, 2018).

This study examined the impact of all three dimensions of sustainability and bank characteristics to financial performance. Specifically, the study measured the extent of the sustainable banking practices of selected rural banks operating in the Philippines in terms of economic, environmental, and social dimensions of sustainability.

The economic dimensions of sustainability refer to the profits, cost savings, economic growth, and research and development pursued in an organization. The profit characteristic needs to be considered by a firm as the real economic benefit of society (Bahadur and Waqqas, 2013). This dimension refers to items conventionally reported in a company's annual financial report and involves investments in human capital, research, and development, and wages, and benefits paid. (Goel, 2010; Hubbard, 2009, Szekely and Knirsch, 2005; Ozelik, Ozturk, and Gürsakal, 2014). The term environmental sustainability, on the other hand, refers to the biosphere's composition. That is, for business, products and actions to be sustainable, the biosphere must support and bear them, and must also be protected and upheld in the longer term (Carew and

Mitchell, 2008; Brennan, Binney, McCrohan, and Lancaster, 2011). This dimension also considers the adoption of green banking practices and taking steps to protect the environment from others. According to Imeson and Sim (2010), cited in Babalola and Adedipe (2014), a bank needs to manage the impact of its activities on society by removing any adverse effects it may have. Positive steps should likewise be taken to help communities through its employment practices, fundraising, volunteering, and charitable giving.

Financial performance is significant to banks since it opens the bank's management to determine its overall performance level (Dufera, 2010, cited in Zyadat, 2017). The Bank CAMELS rating of capital adequacy, asset quality, management quality, earnings ability, and sensitivity to market risks were used to measure the dependent variable of the study, financial performance. The study raised the question of whether sustainable banking practices and bank characteristics can predict financial performance.

2. METHODOLOGY

This study utilized a quantitative approach in determining the strength of the predictive relationship of the dimensions of sustainable banking practices to financial performance. The three (3) dimensions of sustainability were used to measure the level of sustainability practices, namely, economic, social and environmental. Financial performance was measured based on the CAMELS rating model consisting of Capital Adequacy, Asset Quality, Management Quality, Earnings Ability, Liquidity, and Sensitivity to Market Risk). Multiple regression analyses were performed to determine the impact of the dimensions to financial performance.

A modified questionnaire was utilized to conduct the successful survey of 80 rural banks in the Philippines which publish their financial statements. For the economic and social sustainability practices, the indicators and measurement scales used were those of Baumgartner and Ebner (2010), while for environmental sustainability, the indicators and respective measurement scales utilized were those of Jan, Marimuthu, bin Mohd, and Isa (2019).

The instrument was pretested to twelve (12) banking institutions with the same characteristics as the target population of the study. The pre-test yielded a Cronbach alpha value of 0.85, which met the minimum reliability score of at least 0.70. It implies

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that the questionnaire had a high reliability index. For Nunnally (1978, cited in Wei and Lin, 2015), as the construct reliability of all scales exceed the suggested value of 0.70, this indicates acceptable internal consistency.

Survey questionnaire were distributed to the participating banks supplemented with interviews with key informants on bank sustainability initiatives. Data gathering was completed from September to December 2019. The respondents were given ample time to completely answer all items in the survey questionnaire.

Aside from primary data, the study utilized secondary data that were retrieved from the website of the Bangko Sentral ng Pilipinas (BSP). The balance sheets of 80 rural banks publicly published as of March 31, 2019, were accessed.

For ethical considerations, the researchers submitted the protocol for review and approval to the Ethics Research Committee at the University of San Carlos, Talamban, Cebu City, before conducting the survey. Once approved, they issued a research ethics clearance to the researchers.

The purposive sampling method was utilized to select one hundred twenty-one (121) rural banks in the Philippines, which publicly published their balance sheet as of March 31, 2019. The research participants of this investigation were determined using Sample Size to Estimate the Average, that is,

$$n = z^2\sigma^2 / E^2$$

Where n is minimum research participants of the study, z is the standard score equivalent for a 90% confidence level, σ is an estimate of the standard deviation (obtained during the pretesting of the questionnaire), and E is the margin of error. In this study, the researcher made use of $\pm 8\%$. They are substituting these parameters to the above formula resulted in minimum research respondents of 101.

Based on this number of respondents, a total of 101 questionnaires were reproduced to give allowance for those who would not be able to return because of some reasons (lost or misplaced, or errors in accomplishment, non-participation). It also gave room for returned questionnaires that were not entirely answered by the respondents and would be

discarded during the data tabulation. If rural banks would not agree to participate in the study, at least 70% to 80% was the target sample size or $n=80$. Thus, a total of 80 rural banks currently operating in the Philippines participated in the study.

The regression coefficients were evaluated using a 0.10 level of significance. According to Kim & Jae (2014) in their study entitled "Significance Testing in Empirical Finance: A Critical Review and Assessment", that it is a convention to set the level of significance at 0.05. This choice is nearly universal, while 0.01 and 0.10 levels are also widely used. Moreover, Keuzenkamp and Magnus (1995) concluded in their study that "the choice of significance levels seems arbitrary and depends more on convention and, occasionally, on the desire of an investigator to reject or accept a hypothesis", provided that it is within 0.01 and 0.10.

Based on the problems set in the study, the characteristics of the selected rural banks utilized frequency counts, percentages, and descriptive statistics. The extent of practice on the dimensions of sustainability and economic, environmental, and social used the mean and standard deviation. The relationship between sustainable banking practices and financial performance employed multiple regression analysis.

A multiple regression model was estimated to identify the statistically significant influences on sustainability banking practices and financial performance. It summarizes the overall model system for the final regression model, including t -values, probability levels, and collinearity diagnostics. The final model was selected for its explanatory power and overall statistical coherence and provided an excellent overall goodness-of-fit (Jones, Frost, Loftus, and van der Laan, 2007).

3. RESULTS AND DISCUSSION

Report objections to or problems that have arisen from the claim you are making. Report opposing views that you yourself have raised as you were Table 1 presents the regression coefficients for Characteristics of Rural Bank, Sustainable Banking Practices, and Financial Performance (CAMELS). The effects of other banks' characteristics show that only the banks' capital and

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loan portfolios are found to be predictors of their financial performance ($p=0.064$, $p=0.069$), respectively. This implied that the banks' capital and loan portfolio contribute to its financial performance. It should also be noted that of the three sustainability variables, only environmental practices are correlated with the banks' financial performance. In effect, it is the only sustainability factor contributing to the financial performance of the rural banks in the country ($p=0.028$).

With a model fit of 15.70%, the banks' capital, loan portfolio, and environmental practices can predict its financial performance by approximately 15.70% or 16%. In other words, the three factors: capital, loan portfolio, and the bank's environmental practices contributed 16% of its financial performance. The remaining 84% may be due to other factors, which this present study did not include at the onset of the study.

R-squared is a measure of the linear regression model that "fits" a data set called the determination coefficient. It is the proportion of the variance in the response variable that can be explained by the predictor variable. The value of R-squared can range from 0 to 1. A value of 0 indicates that the predictor variable cannot explain the response variable at all. A value of 1 indicates that the response variable can be entirely defined without error by the predictor variable. In practice, it will likely never see a value of 0 or 1 for R-squared. Instead, it will likely encounter some value between 0 and 1 (Zach, 2020).

The coefficient of 0.10 means that for every increase in the banks' environmental practices, an average of 0.10 increases its financial performance. The results show that environmental practices as the independent variable and financial performance (CAMELS) are statistically significant. Thus, results reject the hypothesis that there is no significant relationship between sustainable environmental banking practices and financial performance.

The result supports the research of Aggarwal (2013) entitled "Impact of a company's sustainability performance on its financial performance" that environment-related performance has a significant relationship with the company's financial performance. Similar to the study of Nizam, Ng, Dewandaru, Nagayev, Nkoba (2019), and Albertini

(2013), based on 52 reviews over 35 years, revealed that there is a positive relationship that exists between corporate environmental performance and organizational financial performance.

For banks capital, the coefficient of 0.22 means that for every increase in the banks' capital, financial performance increases by an average of 0.22. In the study of Rosenbusch, Brinckman, and Muller (2013), using bivariate analysis and the regression analysis revealed that venture capital investments have a positive and significant impact on firm performance at an aggregate level ($r=0.08$).

For banks' loan portfolios, this can also be observed from the beta coefficient of -0.14. It implies that any increase in rural banks' loan portfolios will decrease by 0.14 of their financial performance. Likewise, for every reduction in the banks' loan portfolio, financial performance increases by an average of 0.14. The finding supports Thiong' O (2018) findings that loan portfolio growth had a negative effect on Return on Assets (ROA) using regression analysis. The author concluded that an increase in bank loans reduced the profitability of commercial in Kenya.

The regression results highlight that bank capital, loan portfolio, and environmental practices significantly affect financial performance at a 10% level of significance. The regression coefficients of the other bank characteristics such as assets, deposits, economic practices, and social practices are not statistically significant at 10% level. Thus, they have no significant influence on financial performance as measured by the CAMELS rating of selected rural banks in the Philippines. The final regression model is shown below:

$$\text{Camel's Index (FP)} = 3.71 + 0.10 * \text{Environmental Practices} + 0.22 * \text{Ln Capital} - 0.14 * \text{Ln Loans Portfolio}$$

The regression model implies that the financial performance of the rural bank is influenced by its environmental practices and the banks two characteristics – its capital and loan portfolio. Although the statistical significance is at a 90% confidence level, this is a significant result of these researchers. The bank's capital and loan portfolio are major characteristics of a bank in terms of banks having sufficient capital to be offered as loans for clients.

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Whilst the other two dimensions of sustainability, economic and social sustainability practices were practiced by Philippines rural banks, they do not appear as yet to significantly contribute to financial performance. In the same token, asset and deposit size do not significantly contribute to financial performance. Implications to sustainability initiatives of rural banks can be drawn from the study as well as areas for further research.

Table 1. Regression Coefficients for Characteristics of Rural Banks, Sustainable Banking Practices and Financial Performance (CAMELS)

Model (R Square = 15.7%)	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Error Std.	Beta	T	
1(Constant)	3.71	0.95		3.90	0.000
In Assets	-0.29	0.26	-0.77	-1.10	0.275
In Capital	0.22	0.11	0.60	1.88	0.064*
In Deposits	0.19	0.15	0.57	1.25	0.216
In Loans Portfolio	-0.14	0.08	-0.48	-1.85	0.069*
Economic Practices	-0.09	0.09	-0.13	-1.06	0.292
Environmental Practices	0.10	0.05	0.26	2.25	0.028*
Social Practices	0.04	0.09	0.05	0.47	0.640

*. Significant at the 0.10 level (2-tailed). / ** 0.05 level (2 tailed)

4. CONCLUSIONS

It can be concluded from the findings of the study that environmental sustainability practices, capital and loan portfolio significantly affect the financial performance of rural banks.

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6. REFERENCES

- Aggarwal, P. (2013). Impact of sustainability performance of company on its financial performance: A study of listed Indian companies. *Global Journal of Management and Business Research (C: Finance) Volume, 13*.
- Albertini, E. (2013). Does environmental management improve financial performance? A meta-analytical review. *Organization & Environment, 26*(4), 431-457. <https://doi.org/10.1177/1086026613510301>
- Alshehhi, A., Nobanee, H., & Khare, N. (2018). The impact of sustainability practices on corporate financial performance: Literature trends and future research potential. *Sustainability, 10*(2), 494. <https://doi.org/10.3390/su10020494>
- Babalola, A., & Adedipe, O. A. (2014). Corporate governance and sustainable banking sector: Evidence from Nigeria. *Research Journal of Finance and Accounting, 5*(12).
- Bahadur, W., & Waqqas, O. (2013). Corporate social responsibility for a sustainable business. *Journal of Sustainable Society, 2*(4), 92-97. <https://doi.org/10.11634/216825851403389>
- Baumgartner, R. J., & Ebner, D. (2010). Corporate sustainability strategies: sustainability profiles and maturity levels. *Sustainable Development, 18*(2), 76-89. <https://doi.org/10.1002/sd.447>
- Brennan, L., Binney, W., McCrohan, J., & Lancaster, N. (2011). Implementation of environmental sustainability in business: suggestions for improvement. *Australasian Marketing Journal (AMJ), 19*(1), 52-57. <https://doi.org/10.1016/j.ausmj.2010.11.007>
- Carew, A. L., & Mitchell, C. A. (2008). Teaching sustainability as a contested concept:

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Conference theme: "Enabling the Transformation of Resilient Business Environment and Innovation Ecosystem in the ASEAN"

- capitalizing on variation in engineering educators' conceptions of environmental, social and economic sustainability. *Journal of cleaner production*, 16(1), 105-115. <https://doi.org/10.1016/j.jclepro.2006.11.004>
- D'Agostini, M., Tondolo, V. A. G., Camargo, M. E., dos Santos Dullius, A. I., Tondolo, R. D. R. P., & Russo, S. L. (2017). Relationship between sustainable operations practices and performance: a meta-analysis. *International Journal of Productivity and Performance Management*. <https://doi.org/10.1108/IJPPM-11-2015-0168>
- Dufera, M. M. (2010). Evaluation of the Financial Performance of Banking Sectors in Ethiopia: The Case of Zemen Bank. *Global Journal of Management and Business Research*.
- Goel, P. (2010). Triple Bottom Line Reporting: An Analytical Approach for Corporate Sustainability. *Journal of Finance, Accounting & Management*, 1(1).
- Hubbard, G. (2009). Measuring organizational performance: beyond the triple bottom line. *Business strategy and the environment*, 18(3), 177-191. <https://doi.org/10.1002/bse.564>
- Imeson, M., & Sim, A. (2010). Sustainable Banking: Why Helping Communities and Saving the Planet is Good for Business? *SAS White Paper Issued by SAS Institute Inc. World Headquarters*.
- Jan, A., Marimuthu, M., bin Mohd, M. P., & Isa, M. (2019). The nexus of sustainability practices and financial performance: From the perspective of Islamic banking. *Journal of Cleaner Production*, 228, 703-717. <https://doi.org/10.1016/j.jclepro.2019.04.208>
- Kim, J.H. & Ji, P.I. (2014). Significance testing in empirical finance: a critical review and assessment. Retrieved from: <http://csinvesting.org/wp-content/uploads/2015/02.https://doi.org/10.1016/j.jempfin.2015.08.006>
- Nizam, E., Ng, A., Dewandaru, G., Nagayev, R., & Nkoba, M. A. (2019). The Impact of Social and Environmental Sustainability on Financial Performance: A Global Analysis of the Banking Sector. *Journal of Multinational Financial Management*. <https://doi.org/10.1016/j.mulfin.2019.01.002>
- Özçelik, F., Öztürk, B. A., & Gürsakal, S. (2014). Investigating the relationship between corporate social responsibility and financial performance in Turkey. *Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 28(3).
- Rosenbusch, N., Brinckmann, J., & Müller, V. (2013). Does acquiring venture capital pay off for the funded firms? A meta-analysis on the relationship between venture capital investment and funded firm financial performance. *Journal of business venturing*, 28(3), 335-353. <https://doi.org/10.1016/j.ibusvent.2012.04.002>
- Székely, F., & Knirsch, M. (2005). Responsible leadership and corporate social responsibility: Metrics for sustainable performance. *European Management Journal*, 23(6), 628-647. <https://doi.org/10.1016/j.emj.2005.10.009>
- Thiong'o, P. K. (2018). Effect of loan portfolio growth on financial performance of commercial banks in Kenya (Doctoral dissertation). <http://hdl.handle.net/123456789/13428>
- Wei, Y. C., & Lin, C. Y. Y. (2015). How can corporate social responsibility lead to firm performance? A longitudinal study in Taiwan. *Corporate Reputation Review*, 18(2), 111-127. <https://doi.org/10.1057/crr.2015.3>
- Yip, A. W., & Bocken, N. M. (2018). Sustainable business model archetypes for the banking industry. *Journal of cleaner production*, 174, 150-169. <https://doi.org/10.1016/j.jclepro.2017.10.190>
- Oyegunle, A., & Weber, O. (2015). Development of sustainability and green banking regulations: existing codes and practices.

2021 ASEAN UNIVERSITY NETWORK BUSINESS AND ECONOMICS VIRTUAL CONFERENCE

April 16, 2021



Conference theme: "Enabling the Transformation of Resilient Business Environment and Innovation Ecosystem in the ASEAN"

Zach, V. (2020). *What is a Good R-squared Value?* -
Statology. Statology. Retrieved 7 June 2020,
from <https://www.statology.org/good-r-squared-value>.

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Sustainability of Foodpanda Philippines: What do Website Quality and Perceived Value have to do with it?

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Abstract: Companies are striving to create service experiences that are immersive to further boost their sales, engage partners, and build long-term relationships with customers. E-commerce is redefining business activities around the world and has evolved in profound ways as the rise in the use of mobile devices has contributed to this growth. This paper presents the effect and relationship of Website Quality and Perceived Value to the Sustainability of Foodpanda Philippines while being moderated by Customer Satisfaction. The purpose of this study is to show the direct relationship between website quality and perceived value on the sustainability of Foodpanda Philippines. The study revealed that the relationship between website quality and perceived value to sustainability is reciprocal. This study was based on an online survey questionnaire distributed to respondents randomly gathered among residents of Parañaque City, who are users of the said website or mobile application. Afterwards, the data from the online survey were used to analyze the regression analysis and moderating effect of customer satisfaction. The findings from this study reveal that website quality and perceived value, moderated by customer satisfaction, have a direct, significant, and positive impact on the sustainability of Foodpanda Philippines. Overall, the study provides valuable insights for the sustainability of Foodpanda Philippines. Drawing on the empirical findings, managerial implications, and recommendations for future research are offered.

Key Words: Customer Satisfaction; Perceived Value; Website Quality; Regression Analysis; Moderating Regression

1. INTRODUCTION

Companies are striving to create service experiences that are immersive to further boost their sales, engage partners, and build long-term relationships with customers. E-commerce is redefining business activities around the world and has evolved in profound ways as the rise in the use of mobile devices has contributed to this growth. Through mobile devices, people can flexibly engage in buying and selling over the Internet. Most e-commerce businesses can consider developing quality mobile friendly websites or applications to satisfy their potential customers. Along with the increased success of getting customers to avail these e-commerce

services, sustainability, defined as securing company longevity by paying attention to their social, economic, and environmental realms (Mangiaracina et al., 2015), is also taking part in this industry. While some business organizations are adopting e-commerce, either without consideration for sustainability or a holistic approach to sustainability, it shall be useful for business organizations to look at the effect of website quality and perceived value on an organization's sustainability and see gains coming out of this (Chaudhary, 2017). In this paper, perceived value is the worth that a product or service has in the mind of the consumer (Aslam et al., 2018). For instance, companies are developing their

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sustainability measures to reassure their customers that availing their service could both serve their needs and, at the same time, being produced in a manner that is bound to economic, social, and environmental goals that both companies and customers share. As the e-commerce sector has become broad and diverse, many companies have established credibility in this sector. A known company in this sector is Foodpanda. The company is a mobile food delivery service that has a massive footprint of hundreds of restaurant-partners in over 50 countries and one of which is the Philippines.

For an e-commerce business like Foodpanda, it is important to provide the best experience to its customers as it can break or make their relationship with the customers and affect the longevity of the company. Regardless of whatever trends and how much the e-commerce business continues to expand, the first and foremost priority should always be to provide a positive customer experience. With the introduction of e-commerce, the traditional distribution channels have shifted from availing services in stores to availing these online. Today, services are either marketed online to drive traffic to a company's website or they are sold by partner companies, like Foodpanda. The beauty of the Internet is precisely the possibility of digital forming of the world that is around us. The main features of e-commerce, which cannot be ignored, include an easy to access website or application design that does not compromise the security and privacy of those who utilize it. In order to satisfy the growing needs of modern online shoppers, new methods and tools must be innovated in the e-commerce sector. Moreover, these businesses must try to propose the most flexible strategies to address these needs respectively. Further, the inclusion of sustainability measures will be a powerful tool for companies. For Foodpanda in general, understanding the challenges and satisfaction of their customers is an opportunity to identify a conflict they face, and in turn, provide a resolution. Considering these findings and other factors regarding sustainability is playing with consumer decisions; companies should consider how to incorporate this value and practice it into their brand's ethos to both grow customer purchases and loyalty (Chandrasekhar et al., 2019).

This study will give an overall view of what the consumers think about Foodpanda Philippines and what measures should the company take to further improve sustainability. Additionally, this

paper will also examine various factors like preference, quality, and reliability perceived by customers. The study will add to the emerging literature on the e-commerce and sustainability paradigm in the business environment. Likewise, this study will also delve into customer engagement experiences by examining customer perceived value. The findings will offer evidence that, in e-commerce, the link between sustainability is dependent on the website quality and perceived value, wherein customer satisfaction moderates the relationship. However, this study focuses on the website of Foodpanda Philippines.

2. STATEMENT OF THE PROBLEM

The main problem statement of this research is as follows ***"What is the effect and relationship of Website Quality and Perceived Value to the Sustainability of Foodpanda Philippines while being moderated by Customer Satisfaction?"***

Given this main problem, this study would also like to analyze the following problems:

1. What are the factors customers seek in Foodpanda Philippines to achieve a satisfactory customer experience in terms of its website quality and perceived value?
2. What are the factors that could enhance the positive effect and relationship of Foodpanda Philippines' website quality and perceived value on sustainability?
3. What actions and recommendations can be made in order to further enhance Foodpanda Philippines' overall presence on website quality and improve perceived value?

2.1 Hypotheses of the Study

Given the main statement of the problem the following are the hypotheses of this research:

H1: Website Quality does not and has no effect on the Sustainability of Foodpanda Philippines.

H2: Perceived Value does not and has no effect on the Sustainability of Foodpanda Philippines.

H3: Website Quality and Perceived Value do not and have no effect on the Sustainability of Foodpanda Philippines.

H4: Customer Satisfaction does not moderate the effect of Website Quality on the Sustainability of Foodpanda Philippines.

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H5: Customer Satisfaction does not moderate the effect of Perceived Value on the Sustainability of Foodpanda Philippines.

H6: Customer Satisfaction does not moderate the effect of Website Quality and Perceived Value on the Sustainability of Foodpanda Philippines.

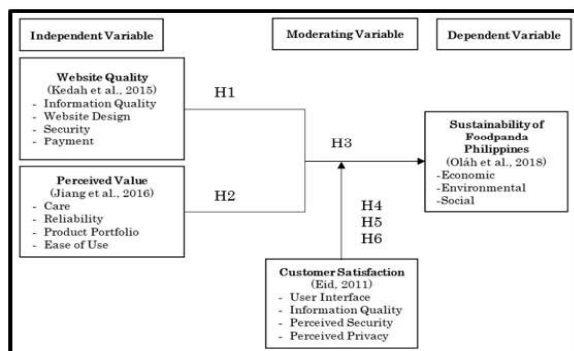


Fig. 1. Operational Framework of the Study

3. LITERATURE REVIEW

3.1 Website Quality

As part of the new normal today, information technology has become part of daily necessities and has brought rapid changes in transforming the daily lives of people. Likewise, e-commerce is now transforming both businesses and consumers in terms of practices and processes. Moreover, it is vital to first understand how e-commerce works in order to be able to determine the necessary characteristics that make the website quality of e-commerce businesses satisfactory and secure.

Website design is one of the important aspects of building a positive online business environment. It comprises various factors that would build consumer trust to help in maintaining sustainable customer relationships. For most, customers identify whether an e-commerce business is trustable based on four elements (Kedah et al., 2015). First, information quality which pertains to the accuracy, integrity, consistency, completeness, validity, timeliness, and accessibility (Alshikhi & Abdullah, 2018) of information regarding the website properties, the products, and the partner companies included. Hence, the completeness of the information is essential for consumers to have better buying decisions. Second, "Website design deals with the emotional appeal, balance, uniformity, and aesthetics of the website,

[including] color, shapes, photography, or even the font style (Garrett, 2003, as cited in Kedah et al., 2015)." It provides first impressions to the online shopping experience as well as attracts visitors for purchase possibilities. The third and fourth elements are the security and payment systems which are the primary concerns of consumers as it deals with privacy and functionality (Kedah et al., 2015).

3.2 Perceived Value

Value is what a person gets out of something. Specifically, it is the ratio of how much it costs to produce a product to how useful it is to the consumer. Perceived value is what the consumer feels when they get out of something, or the worth that a product or service has in their minds (Aslam et al., 2018). Perceived customer value has a direct influence on customer loyalty. In terms of mobile food delivery providers, they should maintain the ease of use, reliability, and security of their platforms to broaden their loyal customer base (Jiang et al., 2016). Customers look for businesses that care about them, that are reliable, that have a wide range of products, that utilizes an online platform that is easy to navigate and that ensure security. Having these proponents would lead to the customers' perceived value of the business (Jiang et al., 2016).

E-commerce companies should strategically position the perceived value of their brand to match the desires, incomes, and expectations of their market segments (Aslam et al., 2018). Perceived value is what customers are willing to pay. More perceived value generates more profit for the company. To an extent, the functional and monetary value does matter. However, it is often the perceived value that hooks the customers into the company and in return, the customers feel satisfied. When it comes to creating perceived value in e-commerce companies, understanding the customers' values makes the company better equipped to navigate the relationship between the two.

3.3 Customer Satisfaction

Customer reviews can make or break a company. On the other hand, the brand's response to the reviews says a lot about how much they value the customers. Keeping a customer happy by rising beyond their expectations and giving them what they want through providing excellent customer service can significantly improve sales. This makes a huge positive impact on the success of the company that is

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why it is important to pay close attention to customer satisfaction (Thakur, 2019).

It is essential for businesses to carefully manage their relationships with their customers by establishing trust, satisfaction, and loyalty. Previous studies have shown that maintaining customer loyalty is difficult even with the rapid growth of e-commerce (Eid, 2011). According to Eid (2011) the following factors are suggested to influence customer satisfaction, trust, and loyalty with digital service providers: user interface quality, information quality, perceived security and perceived privacy. Customers are key drivers to a successful business. This is because satisfied customers would share their experiences with others, which then increases company exposure (Eid, 2011).

According to Ilias & Farid Shamsudin, (2020), customer satisfaction ensures organizations to remain competitive for the fact that customers drive businesses to success. They also pointed out that customer satisfaction leads to a good customer experience, which in turn leads to customer loyalty.

3.4 Sustainability

With the vast advancement in technology, business operations and strategies have changed drastically. The internet has been integral to numerous opportunities such as buying and selling online. This led traditional businesses to go into the vast world of e-commerce as it is the new norm in conducting business. This is because achieving sustainability enables businesses to thrive and succeed. It is a key to long-term profitability, whereas it reaps significant advantages, reduces barriers, and builds resilience (Mangiaracina et al., 2015).

It is crucial to ensure environmental, social, and economic sustainability all at the same time. This is because the rapid growth of e-commerce activities imposes various threats to the environment (Oláh et al., 2018). Oláh et al., (2018) emphasized in their article the importance of making trade-offs in order to ensure the sustainability of the continuously growing online market. In addition, those using the B2C model should be more mindful of their productivity as to put more attention on building customer relationships to attract and maintain customers, while at the same time, not compromising the quality of their products. Moreover, they also recognized the importance of communication between businesses and consumers (Oláh et al., 2018).

3.5 Research Gap

The review of related literature of this study composes of various academic research articles and journals that were conducted on different time periods and different geographical locations, each of which have their own respective research gaps. For this study, specifically, the research gaps are evidenced by the lack of academic articles and journals that talk about Philippine online delivery platforms. In terms of website quality, none of the studies that were obtained support a concrete strategy specifically for e-commerce businesses in the service industry to improve their online delivery platforms. In terms of delivery services for food and beverage products, these are highly perishable and must be handled with utmost care whilst adhering to strict food protocols and standards.

4. RESEARCH METHODOLOGY

4.1 Research Locale

The study is based on Foodpanda Philippines, a mobile food delivery provider with over a thousand partner restaurants nationwide. The Foodpanda website and application shows all nearby restaurants to the customers and they can choose and order from wherever they want to. Foodpanda suggested to consider working on their lull cities. As mentioned by their company representative, Parañaque has a drop when it comes to deliveries in that area. Thus, a structured survey will be conducted among users of Foodpanda Philippines that are residents of Parañaque City.

4.2 Research Design and Instrument

The study is Causal-Explanatory research. The study will utilize a deductive approach and quantitative data collection technique. The method of collecting data will be disseminated online through a Google Forms survey fit to the respondents. It also included the respondent's overall standpoint on Foodpanda Philippines' service quality, company performance, and awareness on sustainability practices. The online survey questionnaire utilizes the five-point Likert scale extending from 1 (strongly disagree) to 5 (strongly agree). The validity of the items of the online questionnaire survey is ensured to have met the required standards and guaranteed that it consisted of practical and ethical information. Through Cronbach's Alpha Test, the online survey

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questionnaire is guaranteed to be valid and to have reliable demographic variable measures. Upon the calculation the overall Cronbach Alpha resulted to 0.95. The Cronbach Alpha for each variable was also tested; Website Quality is 0.80, Perceived Value is 0.89, Customer Satisfaction is 0.92 and Sustainability is 0.88.

4.3 Sampling Design

A mix of purposive sampling and voluntary sampling. Purposive sampling will be used to collect data from the population that meet the eligibility criteria. The study will also work with voluntary sampling due to its ease of access and uncertainty about the distribution of the data and selecting a probability sample would be difficult, given the challenge of the ongoing global health crisis.

The survey will be distributed through social media platforms and targeted to those who fit the criteria and are willing to participate. To determine the sample size, the researchers used Slovin's formula. The total population of Parañaque City is 753,782 as of 2020 (Parañaque · Population, n.d.), and the margin of error is 5%. Therefore, the computed sample size is 384.

5. RESULTS AND DISCUSSION

5.1 Hypotheses Testing

Table 1. Result of Hypotheses Testing

	Hypothesis	Ruling	Basic
1	H1: <i>Website Quality does not and has no effect on the Sustainability of Foodpanda Philippines</i>	Reject H1	R ² = 0.45 P < 0.05 Est = 0.56
2	H2: <i>Perceived Value does not and has no effect on the Sustainability of Foodpanda Philippines</i>	Reject H2	R ² = 0.58 P < 0.05 Est = 0.770
3	H3: <i>Website Quality and Perceived Value do not and have no effect on the Sustainability of Foodpanda Philippines</i>	Reject H3	R ² = 0.59 P < 0.05 Est of Perceived Value = 0.62

	Hypothesis	Ruling	Est of Website Quality =
4	H4: <i>Customer Satisfaction does not moderate the effect of Website Quality on the Sustainability of Foodpanda Philippines</i>	Reject H4	0.16 P < 0.05
5	H5: <i>Customer Satisfaction does not moderate the effect of Perceived Value on the Sustainability of Foodpanda Philippines</i>	Reject H5	P < 0.05
6	H6: <i>Customer Satisfaction does not moderate the effect of Website Quality and Perceived Value on the Sustainability of Foodpanda Philippines</i>	Reject H6	P < 0.05

The data collected from the people residing in Parañaque City with a sample size of 384 was analyzed using descriptive statistics, correlation, and regression analysis. Based on the data collected, it was found that website quality and perceived value have a significant positive relationship as well as have an effect on the sustainability of Foodpanda Philippines. Furthermore, data analysis shows that website quality and perceived value are significant indicators of the sustainability of Foodpanda Philippines, even when moderated by customer satisfaction.

Based on the results, website quality and perceived value have a significant positive relationship as well as an effect on the sustainability of Foodpanda Philippines while being moderated by customer satisfaction. Creating an attractive website quality and establishing a positive perceived value on the services being offered increases customer satisfaction, which increases the sustainability of Foodpanda Philippines as well. For Foodpanda Philippines' sustainability, it is important for the

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company to understand its responsibilities in relation to its website quality and perceived value.

Constantly updating the product information on the Foodpanda Philippines' website or mobile application is one of the factors that could enhance the positive effect and relationship of the company's website quality and perceived value on the sustainability of Foodpanda Philippines. Additionally, other important factors to consider would be to meet customer's expectations and to provide a positive customer experience as these are crucial in achieving customer satisfaction.

6. CONCLUSIONS AND RECOMMENDATIONS

Based on the data collected and analyze it can be concluded that the independent variables, namely website quality and perceived value, are relevant and significant in the overall operations of Foodpanda Philippines. Moreover, these independent variables are also moderated by customer satisfaction, which eventually leads to the sustainability of Foodpanda Philippines.

In order for Foodpanda to maximize its opportunity, it must enhance its information quality by providing complete and accurate product information. This may be done by being more specific in terms of the menu, adding product descriptions such as ingredients and serving size, including the store hours of the restaurants, and placing accurate product photos to better manage customer expectations. Moreover, they may also consider enhancing their website design and its features to have a better, smoother user interface. To achieve this, they may categorize their restaurants according to cuisine, display only available or open restaurants, offer vouchers automatically as soon as the consumers check out, provide real-time tracking on deliveries, and gain access to restaurant reviews and feedback. Additionally, they must also improve the loading time of their website or mobile application. Foodpanda Philippines must also consider the security in the interests of all its stakeholders including the customers, partner merchants, and delivery riders. Thus, they must also verify user profiles by sending one-time-pins prior to ordering to prevent fake bookings, cancellation of orders, or other unscrupulous activities. Furthermore, Foodpanda Philippines may also incorporate a tipping system upon confirming payment, especially in cashless

transactions in order to acknowledge the efforts of the delivery riders.

Achieving a positive perceived value significantly affects the purchase and repurchase decision of the consumers of Foodpanda Philippines. In order to improve this, it is crucial for Foodpanda Philippines to ensure that their customers feel prioritized in every transaction that they make. On a day-to-day basis, the delivery riders represent the values and interests of Foodpanda Philippines. In minimizing customer complaints, continuously updating the customers through the website or mobile application in order to put them at ease. Adding a real-time tracking system is highly suggested as well to further improve on this. Foodpanda Philippines may also incorporate a reliable customer service hotline or chatbot anytime their customers have concerns or complaints that need to be addressed immediately. Moreover, Foodpanda Philippines must not only attract more consumers, but also more partner merchants in order to provide these consumers a variety of options to choose from. As of date, Foodpanda Philippines only offers deliveries within the same city or a 3-to-5-kilometer radius. Providing a long-distance delivery service for customers, who are willing to pay a bit more on shipping, must also be considered. Additionally, their prices must also be reasonable as there are a few complaints that they are slightly higher than in-store or other food delivery services. By adapting these changes, Foodpanda Philippines may also increase its competitive advantage against its growing competitors.

Increasing customer satisfaction is crucial in ensuring the sustainability of Foodpanda Philippines. To solve the problem of having limited choices to choose from, Foodpanda Philippines may set up a cloud kitchen or a centralized commercial kitchen per city. Through this cloud kitchen, all local and small businesses may take part in promoting and selling their products. This would also enable customers to choose from a wider variety of options while paying for only a single delivery fee.

Another recommendation that may be adapted by Foodpanda Philippines is to maximize social media platforms such as Facebook and Instagram. Foodpanda Philippines may then offer their booking and delivery services to these local and small businesses. Since they will not be found on the Foodpanda Philippines' website or mobile application, they may then opt to pay Foodpanda Philippines

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retainer fees instead. Thereby, customers may opt to shop through these platforms. And Foodpanda Philippines delivery riders will pick up their goods as soon as they check out. The goods will be delivered straight to the customers for a standard delivery fee within Metro Manila or per city outside of it. This will also be more convenient for both the seller and the buyer as it saves them time from manually booking other third-party couriers.

As previously mentioned, Foodpanda Philippines does not only aim to expand horizontally, but also vertically. This means that they aim to maximize the services that they can offer their customers. Currently, the Foodpanda Philippines website and mobile application give consumers the option to choose between delivery and pick up. It also has a separate feature that enables them to shop from convenience stores such as 7-Eleven or grocery stores like Food Supfly Co. Foodpanda Philippines is in the works in enhancing this feature by incorporating PandaMart. This aims to be a one-stop-shop for all supermarket needs of the customers.

7. ACKNOWLEDGMENTS

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8. REFERENCES

- Alshikhi, O. A., & Abdullah, B. M. (2018). INFORMATION QUALITY: DEFINITIONS, MEASUREMENT, DIMENSIONS, AND RELATIONSHIP WITH DECISION MAKING. In *European Journal of Business and Innovation Research* (Vol. 6, Issue 5). www.eajournals.org
- Aslam, W., Arif, I., Farhat, K., & Khurshed, M. (2018). The role of customer trust, service quality and value dimensions in determining satisfaction and loyalty: An empirical study of mobile telecommunication industry in Pakistan. *Market-Trziste*, 30(2), 177–194. <https://doi.org/10.22598/mt/2018.30.2.177>
- Chandrasekhar, N., Gupta, S., & Nanda, N. (2019). Food Delivery Services and Customer Preference: A Comparative Analysis. *Journal of Foodservice Business Research*, 22(4), 375–386. <https://doi.org/10.1080/15378020.2019.1626208>
- Chaudhary, S. (2017). Effect of E-Commerce on Organization Sustainability. *IOSR Journal of Business and Management*, 19(07), 15–24. <https://doi.org/10.9790/487x-1907031524>
- Eid, M. I. (2011). Determinants of e-commerce customer satisfaction, trust, and loyalty in Saudi Arabia. *Journal of Electronic Commerce Research*, 12(1), 78–93.
- Ilias, S., & Farid Shamsudin, M. (2020). Customer Satisfaction and Business Growth. In *Journal of Undergraduate Social Science and Technology* (Vol. 2, Issue 2). www.jusst.abrn.asia
- Jiang, L., Jun, M., & Yang, Z. (2016). Customer-perceived value and loyalty: how do key service quality dimensions matter in the context of B2C e-commerce? *Service Business*, 10(2), 301–317. <https://doi.org/10.1007/s11628-015-0269-y>
- Kedah, Z., Ismail, Y., Haque, A. A. K. M., & Selim, A. (2015). Key Success Factors of Online Food Ordering Services: An Empirical Study. *Malaysian Management Review*, 50(2), 19–36.
- Mangiaracina, R., Marchet, G., Perotti, S., & Tumino, A. (2015). A review of the environmental implications of B2C e-commerce: a logistics perspective. *International Journal of Physical Distribution and Logistics Management*, 45(6), 565–591. <https://doi.org/10.1108/IJPDLM-06-2014-0133>
- Oláh, J., Kitukutha, N., Haddad, H., Pakurár, M., Máté, D., & Popp, J. (2018a). Achieving sustainable e-commerce in environmental, social and economic dimensions by taking possible trade-offs. *Sustainability (Switzerland)*, 11(1). <https://doi.org/10.3390/su11010089>

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Oláh, J., Kitukutha, N., Haddad, H., Pakurár, M., Máté, D., & Popp, J. (2018b). Achieving sustainable e-commerce in environmental, social and economic dimensions by taking possible trade-offs. In *Sustainability (Switzerland)* (Vol. 11, Issue 1). MDPI AG.
<https://doi.org/10.3390/su11010089>

Thakur, R. (2019). The moderating role of customer engagement experiences in customer satisfaction–loyalty relationship. *European Journal of Marketing*, 53(7), 1278–1310.
<https://doi.org/10.1108/EJM-11-2017-0895>

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The impact of CSR on Customer Satisfaction: Quantitative study of the top three barangays in Angeles City, Pampanga

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Abstract: This study analyses how consumers perceive the CSR practices carried out by a local water district in Angeles City Pampanga. The main objective of the study is to investigate how CSR practices influence customer satisfaction. To achieve this, several pieces of literature were mentioned to prove that CSR has an important role to its stakeholders. The study used a descriptive and correlational approach to test the hypotheses. The participants of the study were the residents of the top three Barangay in Angeles City in terms of most consumed water supply; namely: Cut-cut, Pampang, and Anunas. Using the Raosoft sample size calculator the computed sample size was 382 respondents and distributed using stratified sampling. Methodologically, the study used statistical treatment to test all the variables and validated the instrument. The result of the study shows that CSR practices significantly impact customer satisfaction.

Keywords: Corporate social responsibility, economic, legal, ethical, and philanthropic responsibilities

1. INTRODUCTION

Covid-19 poses challenges to firms and organizations with regard to corporate social responsibility (CSR). CSR has become a relevant research area in recent years and is by now an important component of dialogue between companies and their stakeholders (Chung et al., 2015). CSR today is regarded as of strategic importance to the issue and discussions are being held on how the environmental and social aspects can be integrated into corporate strategy and everyday practices (Zickiene et al., 2011a). However, there is no clear answer so far how customers perceive CSR practices of businesses, what activities have already been carried out, and what benefits have been received (Zickiene et al., 2011b). Nowadays corporate social responsibility is an integral part of the business vocabulary and is regarded as a crucially important issue in management. Inevitably this crisis has put companies under test for their commitment to ethical business conduct and CSR. To date, corporate social

responsibility has primarily been treated as a corporate issue. It also plays a vital role in building goodwill and good customer relationship.

The importance of implementing CSR is indispensable because it induces the essence of having a sense of responsibility that will have a great impact on the economy, society, and each individual (Van Doorn et al., 2017). Covid-19 pandemic offers great opportunities for companies to actively engage with their CSR strategies and agendas. Therefore, this work describes customer perception of CSR initiatives as the extent to which customers recognize that a company aids the actions related to a social cause (Lee et al., 2013). The research aims to reveal the diversity of interpretations on CSR and summarize the research on CSR, to assess the activities of water supply companies in the context of the implementation of CSR practices.

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The majority of the literature on this topic takes a management perspective. It discusses how companies specifically water supply providers can best respond to specific demands of largely external stakeholders, which CSR initiatives enhance corporate performance, and what motivates companies to become engaged in CSR. The paper can envision the pandemic period as one that the thriving businesses are those with strong CSR commitment and effective CSR strategies and efficient implementations. Hence, it has become relevant to examine the influences of CSR practices. This research aims to fill this gap by examining CSR practices in the Philippines context.

In doing so, this study determines the impact of CSR activities conducted on various consumer and corporate-related dimensions that leads to customer satisfaction. This study analyses how consumers perceive the CSR practices carried out by the local water district in Angeles City Pampanga. The CSR practices vary to four dimensions for evaluating socially responsible practices: economic, legal, ethical, and philanthropic (Chung et al., 2015). According to Gruca and Rego., (2005) and Fornell et al., (2006) customer satisfaction is considered to be a major part involved in the formation of corporate strategy and it is a key driver for a firm's market value and profitability long-run. The main objective of the study is to investigate how CSR practices influence customer satisfaction. Moreover, this paper will further examine the impact of the relationships between CSR and customer satisfaction.

2. THEORETICAL AND CONCEPTUAL FRAMEWORK

In the progress of the fundamental connections between the variables of the research, the theoretical framework of this research was based on the influential pyramid of corporate social responsibility by Carroll (1991). CSR is referred to as business responsibility and an organization's act on environmental, ethical, social, and economic matters. The core variables of CSR from economic, legal, ethical, and philanthropic will be a direct responsibility in being able to achieve their desired goals and objectives. The conceptual framework of this study aims to determine and assess the impact of CSR practices of the local water district on customer satisfaction. The CSR dimensions are economic, legal, ethical, and philanthropic as the independent

variables. On the other hand, customer satisfaction is the dependent variable of the study. Also, this framework supports the relationship between the Pyramid of Corporate Social Responsibility with the variables to customer satisfaction. According to Naznin and Rubel (2014), stated that the customers are the most important stakeholders in an organization in fulfilling the goals and objectives of a company.

3. METHODOLOGY

This study research made use of the descriptive research design to describe customer perceptions in CSR. Besides, the study used correlation research to determine the relationship between the dimensions of CSR and customer satisfaction. The participants of this study are the top three barangays in terms of the most consumed water supply in Angeles City based on the information gathered from the local water district in Angeles City, Pampanga. The said top three barangays are Brgy. Cut-cut, Brgy. Pampang and Brgy. Anunas. Brgy. Cut-cut has a population of 21,601, Brgy. Pampang has 16,198 and Brgy. Anunas has 15,213. The researcher used the Raosoft sample size calculator at a .05 level of significance to arrive at a sample size of 382.

4. RESULT AND DISCUSSION

The primary purpose of this research study is to determine and assess the relationship of the corporate social responsibility of the Angeles City Water District on customer satisfaction. In terms of demographic profile, the range 41-50 years old dominated the ages of the customers while females dominated the number of the population of customers in terms of gender. This means that most females in every barangay were familiar and aware of the service being rendered by the local water district. In terms of civil status, the majority of the customers are married. This implies local water district has been serving most of the families among its overall customers among the top three barangays.

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Table 1. Construct Mean and Standard Deviation

Constructs	Mean	SD	Cronbach's α
Economic Responsibility	4.00	0.657	0.868
E1	4.03	0.717	0.809
E2	3.95	0.763	0.822
E3	4.05	0.678	0.824
E4	4.04	0.725	0.807
E5	4.04	0.789	0.857
E6	4.05	0.828	0.821
E7	3.84	1.05	0.824
Legal Responsibility	4.01	0.759	0.860
L1	3.78	1.030	0.820
L2	4.00	0.820	0.842
L3	4.18	0.799	0.830
L4	4.06	0.788	0.838
L5	3.95	0.760	0.871
L6	4.01	1.670	0.832
L7	4.09	2.200	0.817
Ethical Responsibility	4.05	0.676	0.817
ET1	3.98	0.823	0.910
ET2	4.04	0.776	0.880
ET3	4.06	0.736	0.892
ET4	4.07	0.749	0.890
ET5	4.08	0.763	0.881
ET6	4.05	0.834	0.905
ET7	4.07	0.823	0.884
Philanthropic Responsibility	3.78	0.844	0.849
P1	3.75	0.959	0.886
P2	3.72	0.960	0.851
P3	3.92	0.902	0.891
P4	3.88	0.931	0.885
P5	3.80	0.968	0.821
P6	3.71	1.070	0.816
P7	3.74	1.050	0.827
Customer Satisfaction	3.97	0.761	0.838

Table 1 shows all the five constructs recorded the average and standard deviation scores of the respondents from the three barangays in Angeles City. The respondents' average economic (AE) rating was 4.00 (SD=0.657) indicating that the customers are moderately aware of the economic responsibility practices of the local water district. In terms of legal responsibility practices of the local water district, the respondents' average on legal (AL) rating was 4.01 (SD=0.759) indicating that customers are moderately aware of the legal responsibility practices of the local water district. In terms of ethical responsibility practices of the local water district, the respondents' average ethical (AETH) rating was 4.05 (SD=0.676) indicating that the customers are moderately aware of the ethical responsibility practices of the local water district. In terms of philanthropic responsibility practices of the local water district, the respondent's average philanthropic (AP) rating was 3.78 (SD=0.844) indicating that the customers are moderately aware of the philanthropic responsibility practices of the local water district. Additionally, in terms of the overall customer satisfaction, the respondents' overall customer satisfaction (CS) rating was 3.97 (0.761) indicating that the customers are very satisfied with the various CSR practices of the local water district.

Table 2. Correlation Matrix

		AE	AL	AET	AP	CSR	CS
AE	Spearman rho	—					
	p-value	—					
AL	Spearman rho	0.645	—				
	p-value	<.001	—				
AET	Spearman rho	0.730	0.654	—			
	p-value	<.001	<.001	—			
AP	Spearman rho	0.637	0.586	0.667	—		
	p-value	<.001	<.001	<.001	—		
CSR	Spearman rho	0.864	0.840	0.879	0.856	—	
	p-value	<.001	<.001	<.001	<.001	—	
CS	Spearman rho	0.657	0.586	0.648	0.670	0.745	—
	p-value	<.001	<.001	<.001	<.001	<.001	—

This research study aims to investigate five hypotheses, showing the relationship between CSR practices (economic, legal, ethical, and philanthropic) and customer. Obtained on the result of the study, completely the hypotheses were verified and validated. Results from this study show that CSR practices significantly correlated with customer satisfaction (H1), AE (H1a), AL (H1b), AET (H1c), and AP (H1d).

Table 3. Path relationship

Constructs	Hypothesis	Result	Spearman's rho	Significance
CSR ↔ CS	H1	Strongly positively correlated	0.745	p<.001
AE ↔ CS	H1a	Moderately positively correlated	0.670	p<.001
AL ↔ CS	H1b	Moderately positively correlated	0.648	p<.001
AET ↔ CS	H1c	Moderately positively correlated	0.586	p<.001
AP ↔ CS	H1d	Moderately positively correlated	0.657	p<.001

Table 3 presented a summary of the path relationship using a correlational matrix. For corporate social responsibilities (CSR) practices and customer satisfaction (CS) ratings were strongly positively correlated, $r=0.745$, and were significant ($p<.001$). As well as the average economic responsibility (AE) and customer satisfaction (CS) ratings were moderately positively correlated, $r=0.670$, and were significant ($p<.001$). Correspondingly, average legal responsibility (AL) and customer satisfaction (CS) ratings were moderately positively correlated, $r=0.648$, and were significant ($p<.001$). In the same way, average ethical responsibility and customer satisfaction (CS) ratings were moderately positively correlated, $r=0.586$, and were significant ($p<.001$). Lastly, average philanthropic responsibility (AP) and customer satisfaction (CS) ratings were moderately positively correlated, $r=0.657$, and were significant ($p<.001$).

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Table 4. Model Fit Measures

Model	R	R ²	Overall Model Test			
			F	df1	df2	p
1	0.750	0.563	121	4	377	<.001

Table 5. Model Coefficients – CSR and CS

Predictor	Estimate	SE	95% Confidence Interval		t	p
			Lower	Upper		
Intercept	0.443	0.1725	0.1039	0.782	2.57	0.011
AE	0.280	0.0627	0.1573	0.404	4.48	<.001
AL	0.128	0.0488	0.0325	0.223	2.63	0.009
AET	0.189	0.0630	0.0652	0.313	3.00	0.003
AP	0.296	0.0438	0.2100	0.383	6.75	<.001

The result of the multiple regression analysis indicated that the predictor's average economic responsibility ratings (AE), average legal responsibility (AL) ratings, average ethical responsibility (AET) ratings, and average philanthropic responsibility (AP) ratings explained 56.3% of the variance ($R^2=0.563$, $F(4,377)=121$, $p<.001$). Furthermore, it was found that AE ratings significantly predicted CS ratings ($\beta=0.280$, $p<.001$) therefore accepted H1a. It was also found that AL ratings significantly predicted CS ratings ($\beta=0.128$, $p=.009$) therefore accepted H1b. Similarly, it was found that AET ratings significantly predicted CS ratings ($\beta=0.189$, $p=.003$) therefore accepted H1c. And lastly, it was found that AP ratings significantly predicted CS ratings ($\beta=0.296$, $p<.001$) therefore accepted H1d.

5. CONCLUSION

This pandemic offers great opportunities for firms to actively engage in various CSR initiatives during the crisis, and potentially catalyze a new era of CSR development in the long run. This study contributes to an overall understanding of CSR practices in Angeles City by examining the various practices leading to customer satisfaction. For consumers, the ethical dimension of consumer decision has become salient during the pandemic, which is also likely to shift consumers towards more responsible and prosaically consumption. Building strong customer responsiveness and awareness is an important foundation for developing a sustainable competitive advantage through customer satisfaction. This study examines whether CSR factors can play a role in enhancing customer satisfaction in Angeles City Pampanga, particularly in the top three barangay.

In terms of the economic responsibility of the local water district, customers rated the said dimension agree. Therefore, the local water district must not be complacent with its present level of corporate social responsibility performance as reflected by the ratings of the respondents. There is a need for the said organization to meet the changing demands by delivering good service to every customer that leads to positive feedback. The payments incurred from the customers must be properly reciprocated by improving their overall performance. Also, most of the customers agree that a business's legal responsibility is to abide by the promulgated law on pricing and protect the right of every customer. The local water district must enhance its legal performance as perceived by the respondents by further adhering to the rules and laws regarding its processes to operate.

Moreover, regarding the ethical responsibilities of the local water district, addressing the concerns of its customers is a vital part of the business. This signifies that being able to consider what the customers say is an important factor in giving quality service since customers are the bloodline of every business, treating them important plays a vital role in the business' continuous operation. Also, regarding the philanthropic responsibility of the local water district, customers rated agree. For the organization to heighten its good corporate image, it must go beyond what is written in its mission by continuously making a difference in the lives of every customer through this activity.

6. PRACTICAL IMPLICATION

In the test of the degree of relationship between the dimensions of corporate social responsibility and customer satisfaction, it was found out that there is a significant relationship between the two variables. This implies that the corporate social responsibility practices of the local water district have a significant impact on the awareness of the customers that lead to satisfaction and improve organizational performance. The respondents who have cumulative experiences with local water district have formed perceptions already of how the service will be delivered, therefore, their expectations are increasing, and looking for improvement the next time they will encounter the service.

This study shows that CSR positively influences customer satisfaction and consumer rights

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and protection is the most important factor of CSR while humanitarian contribution is the least factor. Firms may consider their involvement in some CSR initiatives such as community and environment support and customer relations. To increase customer intentions for repeat business, firms' involvement in CSR activities tends to increase favorable attitudes of their customers which results in behavior disposition. And lastly, while the local water district must promote social welfare and behave as good corporate citizens, they must spend the resources allocated to CSR initiatives in ways that yield optimum benefits to society as well as to the stakeholders of the company. The business has an important role to play in addressing the health and safeguarding the welfare of the stakeholder especially during the COVID-19 pandemic (Mitsakis 2019; Wang, Hutchins, and Garavan 2009).

7. RECOMMENDATION

Based on the findings drawn, the following recommendations are offered: Improvement of customer awareness on the corporate social responsibility practices of the local water district. To increase customer awareness, the company must be able to conform to what CSR is asking for, complying with each dimension of CSR and being able to go beyond the written contract of agreement, local water district can consider an extra effort of building a good corporate image so that its customers will perceive the company as a role model of CSR initiator. The CSR of the said agency should be aligned with the identified demands of its customers and, therefore, fulfilled by the local water district. In the improvement of customer awareness, it should begin with a clear understanding of how the CSR activities of the local water district are linked to its mission, vision, and resources. It can only be strategic if it is fully aligned with the values, core competencies, and long-term plans of the local water district. The local water district must build goodwill and strong relationships through open communication with the customers. One of the best ways to improve customer awareness is to let the customers be well-informed of the events and updates, especially if it involves CSR practices that need the help of the community. Businesses of all sizes including local water districts must act ethically and responsibly to do no harm, care for customers, and allow the government to do its job in protecting people and every company should make

concentrated efforts to meet customers' needs and desires (Tamir, 2020).

Local water districts must be proactive in their CSR commitment. They must be proactive in their CSR commitment by not only accepting but also anticipates stakeholders' interests. The local water district must align the legitimate stakeholder views with its responsibilities and will do more than is required to meet them. Furthermore, the local water district needs further research to understand stakeholder expectations and their willingness to collaborate for mutual benefit. A well-committed company manifests a good company personality that plays a vital role in customer awareness. People will then be talking about the emerging growth of the local water district as an organization that is not only profit-seeking but people-seeking.

8. LIMITATION OF THE RESEARCH STUDY

There were certain limitations of this research study. It is suggested to future researchers that similar research must be undertaken employing other relevant stakeholders like employees, community, and government as the participants. Also, a longitudinal and qualitative study would provide further theoretical details underlying the findings of this study. Furthermore, the future study may explore the relationship between CSR and the Resource-Based View theory of the firm. The resource-based perspectives are useful to understand why firms engage in CSR activities and disclosure. From a resource-based perspective, CSR is seen as providing internal or external benefits, or both. Investments in socially responsible activities may have internal benefits by helping a firm to develop new resources and capabilities which are related namely to know-how and corporate culture.

9. REFERENCES

- Carroll, A.B. (1991). The pyramid of corporate social responsibility: toward the moral management of organizational stakeholders. *Business Horizons*. Retrieved from <http://www-rohan.sdsu.edu/faculty/dunnweb/rprnts.pyramid.html>
- Chung, K.-H., Yu, J.-E., Choi, M.-G., & Shin, J.-I. (2015). The Effects of CSR on Customer Satisfaction and Loyalty in China: The

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- Moderating Role of Corporate Image. *Journal of Economics, Business, and Management*, 3(5), 542–547.
<https://doi.org/10.7763/joebm.2015.v3.243>
- Froehle, C. M. (2006). "service personnel, technology, and their interaction in influencing customer satisfaction". *Decision Sciences*, 37(1) : 5-38.
- Gruca, T. S., & Rego, L. L. (2005). "Customer satisfaction, cash flow, and shareholder value". *Journal of Marketing*, 69(3): 1-130.
- Lee, S. S., Kim, Y., & Roh, T. (2013). Modified pyramid of CSR for corporate image and customer loyalty: Focusing on the moderating role of the CSR experience. *Sustainability (Switzerland)*, 11(17).
<https://doi.org/10.3390/su11174745>
- Mitsakis, F. V. 2019. "Human Resource Development (HRD) Resilience: A New 'Success Element 'of Organizational Resilience?'" *Human Resource Development International* 1–8.
<https://doi:10.1080/13678868.2019.1669385>
- Naznin, A., & Rubel, A. K. (2014). Impacts of corporate social responsibility on customer satisfaction in the Telecom Industry of Bangladesh. *ABC Journal of Advanced Research*, 3(2), 93–104.
<https://doi.org/10.18034/abcjar.v3i2.35>
- Ness, M. R. (1992). Corporate social responsibility. *British Food Journal*, 94.7:38 Retrieved from:<http://search.proquest.com/docview/225147392?accountid=148769>
- Tamir, I. (2020). What's the role of business in the COVID-19 crisis? *Oxfam America Inc: Politics of Poverty*
- Van Doorn, J., Onrust, M., Verhoef, P. C., & Bügel, M. S. (2017). The impact of corporate social responsibility on customer attitudes and retention—the moderating role of brand success indicators. *Marketing Letters*, 28(4), 607–619. <https://doi.org/10.1007/s11002-017-9433-6>
- Van Doorn, J., Onrust, M., Verhoef, P. C., & Bügel, M. S. (2017). The impact of corporate social responsibility on customer attitudes and retention—the moderating role of brand success indicators. *Marketing Letters*, 28(4), 607–619. <https://doi.org/10.1007/s11002-017-9433-6>
- Zickiene, S., Potelis, N., Juozaitiene, L., & Poteliene, S. (2011a). Corporate Social Responsibility Disclosure in Water Supply Companies. *Social Research*, 4(4), 43–55.
- Zickiene, S., Potelis, N., Juozaitiene, L., & Poteliene, S. (2011b). The manifestation of corporate social responsibility in water supply companies. *Social Research*, 4(4), 43–55.
- Zickiene, S., Potelis, N., Juozaitiene, L., & Poteliene, S. (2011b). Manifestation of corporate social responsibility in water supply companies. *Social Research*, 4(4), 43–55.

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Parallel Session F: Digitalization and Innovation

Conference theme: "Enabling the Transformation of Resilient Business Environment and Innovation Ecosystem in the ASEAN"

Embracing Digitalisation - Exploring the Relationship Between Digital Competence and Self-Efficacy of School Teachers

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Abstract: In the changed scenario, pedagogy requires organic integration of digital educational resources in the non-traditional learning environment. It is highly relevant to understand the different dimensions of digital competence a teacher should have, so that he can integrate technology to manage classrooms. These dimensions of digital competence are potential antecedents of self- efficacy beliefs among teachers. We attempt to bring a new operational framework (TPDEC framework) for assessing the digital competence of school teachers. The objectives of this study are to check the robustness of the new TPDEC framework and to explore the influence of different dimensions of digital competence on the self-efficacy beliefs of teachers. The study is carried out using primary data collected through an online questionnaire from 493 school teachers in Kerala, India. To analyse causal relationships between the constructs used in the study, the structural equation modelling (SEM) approach is adopted. Findings of the study suggest that various dimensions of digital competence influence teacher's self- efficacy. This highlights the need to provide quality trainings and skill development programmes for school teachers which may help them to adapt well to the changing needs of educational sector.

Key Words: Digital Competence; TPDEC framework; School Teachers; Self-efficacy; SEM

1. INTRODUCTION

Covid – 19 has changed the educational sector and digitalisation is the norm in the new normal. As technology continues to play a major role in the teaching and learning process, there is a need to understand the level of digital competence of teachers to adapt to the changing landscape. Digital innovations and technologies such as artificial intelligence, gamification and internet of things are creating new ways of interaction between teachers and students. Our understanding of teaching and learning has changed fundamentally due to the disruptive technology and a teacher's role has been transformed into a 'knowledge facilitator' who needs to integrate digital technology into teaching – learning

process. In March 2020, state governments across India had to shut down schools and higher education institutions, as a measure to contain the spread of novel coronavirus. This affected the continuity of learning of more than 285 million young learners in India engendering far – reaching economic and social consequences.

In the changed scenario, pedagogy requires organic integration of digital educational resources in the non-traditional learning environment. It is highly relevant to understand the different dimensions of digital competence a teacher should have, so that he can integrate technology to manage classrooms. These dimensions of digital competence are potential antecedents of self- efficacy beliefs among teachers. Self- efficacy is a key factor which influences an

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individual's perseverance and resilience in the times of difficulty. There is a strong positive correlation between a teacher's sense of efficacy and the level of effort, persistence and resilience (Usher et.al.2008). It motivates a teacher for self-regulated and lifelong learning. Moreover, teachers with high self-efficacy positively influence student learning and contribute to building competencies in students (Thoonen et.al.2011)

The study focuses on two main questions (i) What is the current level of digital competence among school teachers in Kerala? Is there any association between digital competence and the teacher's self-efficacy beliefs? We attempt to bring a new operational framework (TPDEC framework) for assessing the digital competence of school teachers. The objectives of this study are to check the robustness of the new TPDEC framework and to explore the influence of different dimensions of digital competence on the self-efficacy beliefs of teachers.

This paper is organised as follows: We begin by briefly describing the theories used to develop the new framework (TPDEC). Then we present the study setting and research methodology, and provide the details of our research. We conclude the paper with a discussion of the results and scope for future research.

2. METHODOLOGY

2.1 Theoretical Framework

The TPDEC framework is developed by drawing inspiration from the theoretical models suggested by DigComp 2.1 (2017) and Ottestad et.al (2014). The DigComp 2.1 is a digital competence framework published by European Union which has eight proficiency levels. The model suggested by Ottestad et.al (2014) has three dimensions of digital competence (Generic digital competence, Didactic digital competence and Professional oriented digital competence). The TPDEC framework developed in this research, identifies four dimensions of digital competence which include technological and pedagogical digital competence, didactic digital competence, evaluative digital competence and communicative digital competence. The technological and pedagogical competence (TPC) is defined as the ability of the teacher to integrate technology in the constructive, collaborative, integrative, reflective and inquiry-based delivery methods (Almenara, 2021; Porlan et.al, 2016; Sonmark et.al, 2017; Adegbola,

2019). Didactic digital competence (DC) is the ability of the teacher to integrate technology in curriculum development and course and module designing (Porlan et.al, 2016; Karimi, 2014). The ability of the teacher to integrate technology in carrying out student assessment and evaluation is defined as evaluative digital competence (EC) (Murcia et.al, 2015), whereas the ability of the teacher to use technology to engage in one-way and two-way verbal and non-verbal communication with students is defined as communicative digital competence (CC) (Okoli, 2017).

Self-efficacy theory is used in educational research, where a person is to achieve a new, or develop a higher level of skill. It is defined as a belief to successfully perform a particular task or behaviour (Eachus, 2006). Teachers' self-efficacy beliefs is defined as teachers' perception of ability to affect students' performance and showing necessary behaviours to do their duty successfully (Atıcı 2000). Several researchers have reported significant positive relationships between digital competence and self-efficacy beliefs of teachers (Hatlevik, 2017). Based on literature we have identified three dimensions of self-efficacy for teachers (efficacy in student engagement (ESE), instructional strategies (EIS) and classroom management (ECM)) (Bandura, 2014; Barni, 2019). We hypothesize that the four different dimensions of digital competence positively influence the three dimensions of self-efficacy beliefs of teachers. High levels of digital competence will lead to high self-efficacy beliefs in teachers. In the current scenario of pandemic, when education sector is undergoing vast changes, understanding the level of digital competence of school teachers and exploring the relationship between digital competence and self-efficacy beliefs of teachers will help us to identify the training needs of the teachers. Improving the digital competence of teachers will affect the students indirectly via the instructional strategies, planning and a willingness to try out new material and approaches to teaching a subject.

2.2 Data Collection

The data is collected using a 37 – statement instruments from 493 school teachers in Kerala, India during a three-month period from January to March in 2021. The instrument is distributed as an online questionnaire to 600 school teachers out of which only 493 are received as completely filled. As a first step in deriving a scale for TPDEC model, we created a list of

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56 statements to cover different dimensions of digital competence. Based on 163 responses we received during the pilot study, 56 items are reduced to 25 statements through computing discrimination indices for all items and performing cross correlation between all responses. Twelve items taken from Ohio State Teacher Self- Efficacy scale is used to measure self-efficacy beliefs of teachers. All the 25 items related to digital competence are measured in a five-point Likert scale with response options ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), whereas all the 12 items used to measure self-efficacy beliefs of the teachers are also measured in a five-point Likert scale with response options ranging from 1 (Nothing) to 5 (A great deal). In addition to the 37 statements, the questionnaire also asked for background information (years of teaching experience, age, gender, whether the teacher is employed in government sector, private – aided sector or private- unaided sector etc.).

In the sample of 493 teachers, 11% are males and 89% are females. 27.4% are employed in private – aided sector, 44.5% are employed in private-unaided sector and 28% are employed in government sector. The mean value of the age of the sample is 43 years (minimum age of respondents is 26 years and maximum age is 58 years) and the mean value of teaching experience is 16 years (minimum years of experience is 1 year and maximum years of experience is 32 years).

Table 1. Descriptive Statistics of Variables (Digital Competence)

	TPC	DC	EC	CC
Mean	3.67	3.64	3.49	3.75
Std.dev	.65944	.81971	.80898	.86657
Minimum	1.09	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00
Total	493	493	493	493

Table 2. Descriptive Statistics of Variables (Self- Efficacy)

	ES E	EIS	ECM
Mean	3.55	3.54	3.61
Std.dev	.86977	.8636	.8679
Minimum	1.50	1.50	1.25
Maximum	5	5	5
Total	493	493	493

3. RESULTS AND DISCUSSION

To analyse causal relationships between constructs used in the study, the structural equation modelling (SEM) approach is adopted. Analysis of the research model was done using the Partial Least Square (PLS) based software, Warp PLS 7.0. The PLS regression algorithm with boot strapping method of re-sampling was used for estimation of the model that maximizes the variance explained in the latent variable scores by the latent variable indicators. The estimates included path coefficients with 'p' values, indicators' weights, loadings, and factor scores.

Table 3. Validity/reliability criteria adopted in this study

Consideration	Guideline (WarPLS 7.0)	
	Reflective Constructs	Formative Constructs
Cronbach alpha coefficient	>0.7	NA

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Composite reliability	>0.7	NA
Average variance extracted	>0.5	>0.5
Convergent validity	p values associated with the loadings be lower than 0.05; and that the loadings be equal to or greater than 0.5; cross loading less than 0.5	VIF<5: all indicator weights should be with $p < 0.05$
Discriminant validity	The square root of the average variance extracted should be higher than any of the correlations involving that latent variable	
Effect sizes of path coefficient	Effect sizes (f-squared) of 0.02, 0.15, and 0.35, respectively for small, medium, or large effect (Cohen, 1988).	
Predictive validity	Positive value of Stone-Geisser Q-squared coefficients	

The validity and reliability criteria vary depending on the nature of the construct. The guidelines are shown in Table 3. For evaluation of measurement indicators, the loading/weights of the indicators should be more than 0.5 and the corresponding 'p' should be less than 0.01, after estimation. Causality assumptions were verified only on the basis of a valid model. The pre-processing of data as part of Warp PLS 7.0 analysis confirmed the quality of data for further analysis with regard to missing values, zero variance and so on. The estimated model with path coefficients and corresponding 'p' values are illustrated in Fig. 1. The

validity of the model was evaluated with various fit indices. It was recommended that the 'p' values for both the average path coefficient (APC) and the average R-squared (ARS) be lower than 0.05. In addition, it was recommended that the average variance inflation factor (AVIF) be lower than 5 (Kock, 2010). It was found that APC, ARS and AVIF for the model are 0.172, 0.341 and 2.185 respectively. All three fit criteria were met and the model had an acceptable predictive and explanatory quality as the data was well represented by the model. All the factor loadings of the reflective indicators were found to be more than 0.5 with $p < 0.01$. The composite reliability, Cronbach alpha and average variance extracted (AVE) were above the threshold limits. The model emerged as one with satisfactory value for R-squared and Q-squared being indicators for predictive validity. All these observations confirmed the reliability and validity of the constructs making it suitable to draw conclusions on causality (Table.4)

Table 4. Details of Critical Considerations regarding Validity

Consideration	TPC	DC	EC	CC	ES	EIS	ECM
Cronbach alpha coefficient	0.879	0.823	0.841	0.901	0.862	0.888	0.890
Composite reliability	0.902	0.884	0.888	0.927	0.906	0.923	0.924
Average variance extracted	0.460	0.657	0.613	0.716	0.707	0.749	0.752
Convergent validity	Established as: - all 'p' values <0.05; loadings >0.5; cross loadings <0.5 for reflective measures						

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Discriminant Validity Established as square root of average variance extracted was found higher than any off-diagonal correlations involving that variable

Predictive validity Established Q-squared coefficient of 0.3317 for ESE, 0.369 for EIS and 0.321 for ECM

H6 - Deductive competence (DC) has an influence on efficacy in classroom management (ECM) $\beta = 0.179$ $p < 0.001$ (Accepted).

H7 - Evaluative competence (EC) has an influence on efficacy in student engagement (ESE) $\beta = 0.014$ $p = 0.378$ (Rejected).

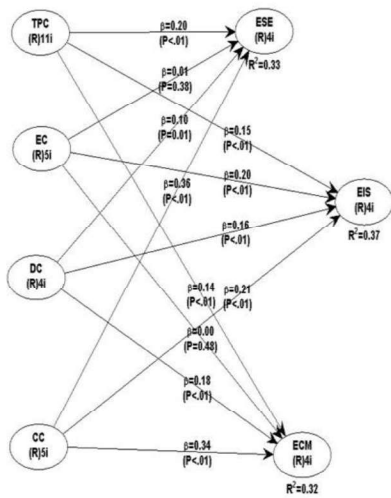


Fig. 1. Estimated Model with Self Efficacy constructs

3.1 Results of Hypothesis Testing

H1 - Technological and pedagogical competence (TPC) has an influence on efficacy in student engagement (ESE) $\beta = 0.196$ $p < 0.001$ (Accepted).

H2 - Technological and pedagogical competence (TPC) has an influence on efficacy in instructional strategies (EIS) $\beta = 0.154$ $p < 0.001$ (Accepted).

H3 - Technological and pedagogical competence (TPC) has an influence on efficacy in classroom management (ECM) $\beta = 0.142$ $p < 0.001$ (Accepted).

H4 - Deductive competence (DC) has an influence on efficacy in student engagement (ESE) $\beta = 0.103$ $p = 0.10$ (Accepted).

H5 - Deductive competence (DC) has an influence on efficacy in instructional strategies (EIS) $\beta = 0.164$ $p < 0.001$ (Accepted).

H8 - Evaluative competence (EC) has an influence on efficacy in instructional strategies (EIS) $\beta = 0.196$ $p < 0.001$ (Accepted).

H9 - Evaluative competence (EC) has an influence on efficacy in classroom management (ECM) $\beta = 0.002$ $p = 0.479$ (Rejected).

H10 - Communicational competence (CC) has an influence on efficacy in student engagement (ESE) $\beta = 0.357$ $p < 0.001$ (Accepted).

H11 - Communicational competence (CC) has an influence on efficacy in instructional strategies (EIS) $\beta = 0.214$ $p < 0.001$ (Accepted).

H12 - Communicational competence (CC) has an influence on efficacy in classroom management (ECM) $\beta = 0.342$ $p < 0.001$ (Accepted).

4. CONCLUSIONS

According to the analysis, it has been found that technological and pedagogical digital competence, didactic digital competence, evaluative digital competence and communicative digital competence are satisfactory among the school teachers in Kerala (with mean value > 3.00). The different dimensions of digital competence are found to have moderate positive influence on the self-efficacy beliefs of teachers. The two paths which are found to be insignificant are the relationships between evaluative digital competence and efficacy in student engagement and classroom management. This is supported by the previous literature as evaluative digital competence refers to the ability of teachers to integrate technology into student assessments which will positively influence the instructional strategies. It is also observed that all the four competencies together could explain 33% variation in efficacy in student engagement (ESE)

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($R^2 = .330$) and 37% variation in efficacy in instructional strategies (EIS) ($R^2 = .370$) and 32% in the case of efficacy in classroom management (ECM) ($R^2 = .320$)

5. REFERENCES

- Adegbola & Funmi Florence. (2019). Teachers' pedagogical competence as determinants of students' attitude towards basic science in South West Nigeria. Vol. 14(18), pp. 655-660, DOI: 10.5897/ERR2019.3761.
<https://academicjournals.org/journal/ERR/article-full-text-pdf/0EEEB9962419>
- Adem Uzun, Ruçhan Ozkılıç & Aysan Şenturk (2010). A case study: Analysis of teacher self-efficacy of teacher candidates. *Procedia - Social and Behavioural Sciences*. Volume 2, Issue 2. Pages 5018-5021, ISSN 1877-0428, <https://doi.org/10.1016/j.sbspro.2010.03.813>.
- Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Barni Daniela, Danioni Francesca & Benevene Paula (2019). Teachers' Self-Efficacy: The Role of Personal Values and Motivations for Teaching. *Frontiers in Psychology*. Vol. 10. <https://www.frontiersin.org/article/10.3389/fpsyg.2019.01645>
- Cabero-Almenara, J., Guillen-Gamez, F.D. & Ruiz-Palmero, J. et al. (2021). Digital competence of higher education professor according to DigCompEdu. <https://doi.org/10.1007/s10639-021-10476-5>
- Carretero Gomez Stephanie, Vuorikari Riina & Punie Yves. (2017). Publications Office of the European Union ISBN: 978-92-79-68006-9 (pdf).
- Eachus, Peter & Cassidy, Simon. (2006). Development of the Web Users Self-Efficacy scale (WUSE). *Issues in Informing Science and Information Technology*. 3. 199-209.
- Gutierrez Porlan, Isabel & Serrano, Jose. (2016). Evaluation and development of digital competence in future primary school teachers at the University of Murcia. *New Approaches in Educational Research*. 5. 51-56.
- Hatlevik, Ove. (2017). Examining the Relationship between Teachers' Self-Efficacy, their Digital Competence, Strategies to Evaluate Information, and use of ICT at School. *Scandinavian Journal of Educational Research*. 61. 555-567. 10.1080/00313831.2016.1172501.
- Juan Antonio Moreno-Murcia, Yolanda Silveira Torregrosa & Noelia Belando Pedreno. (2015). Questionnaire evaluating teaching competencies in the university environment. *Evaluation of teaching competencies in the university*. *New Approaches in Educational Research* Vol. 4. No. 1. pp. 54-61 ISSN: 2254-7399
- Karimi, Florah. (2014). Didactic Competencies among Teaching Staff of Universities in Kenya. *International Journal of Higher Education*. 3. 28. 10.5430/ijhe. v3n2p28.
- Kock, N. (2018). Minimum Sample Size Estimation in PLS-SEM: An Application in Tourism and Hospitality Research. Ali, F., Rasoolimanesh, S.M. and Cobanoglu, C. (Ed.) *Applying Partial Least Squares in Tourism and Hospitality Research*, Emerald Publishing Limited, Bingley, pp. 1-16.
- Okoli, Alexander C. (2017). Relating Communication Competence to Teaching Effectiveness: Implication for Teacher Education. *Journal of Education and Practice*, v8 n3 p150-154.
- Ottestad, Geir & Kelentric, Marijana & Guðmundsdóttir, Greta. (2014). Professional Digital Competence in Teacher Education. *Nordic Journal of Digital Literacy*. 9. 243-249.

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Sonmark, K., Revai, N., Gottschalk, F., Deligiannidi, K. & Burns, T. (2017). Understanding teachers' pedagogical knowledge: report on an international pilot study (No. 159). Paris, France: OECD Education working Papers

Thoonen, Erik & Slegers, Peter & Oort, Frans & Peetsma, Thea & Geijsel, Femke. (2011). How to Improve Teaching Practices: The Role of Teacher Motivation, Organizational Factors, and Leadership Practices.

Usher, Ellen & Pajares, Frank. (2006). Sources of academic and self-regulatory efficacy beliefs of entering middle school students. *Contemporary Educational Psychology*. 31. 125-141.
10.1016/j.cedpsych.2005.03.002.

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Measuring the Innovation Self-Efficacy of Selected Business Management Students

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Abstract: This study examines the argument that cultivating innovation can start during an individual's college education years by (1) adopting an innovation self-efficacy measure based on an inductive grounded theory study of innovative entrepreneurs that is designed for engineering students and (2) applying it to business management college students. This paper describes the adaptation, development, and determination of the representative questions per construct via exploratory factor analysis (EFA). Furthermore, the study analyzes the relationships of the research variables to the demographic profiles of business students from different schools. Results show that business management students exhibit moderate degrees of self-efficacy, with associational thinking being their most notable skill. This paper also identifies several possible factors that influence observed differences in various innovation-related skills of students from different schools. Lastly, the research is successful in reducing the original scale to five representative questions that can be easily deployed and combined with other scales or items of interest.

Key Words: Entrepreneurship; Innovation Self-Efficacy; Business Management Students; Philippines

1. INTRODUCTION

Entrepreneurship and innovation play an important role in economic growth, especially now that industries are facing rapidly changing global environment, developments in technology, and the COVID-19 pandemic. As more students exhibit entrepreneurial skills and tendencies, there is a need to know and understand how they see themselves as "innovators", their orientation to innovation, and their confidence to engage in innovative activities. One way to measure a potential entrepreneur's innovation capability is to determine innovation self-efficacy, an individual's belief in his/her ability to accomplish innovative work (Schar et al., 2017), including novel market offerings, improved process design, or even new business models. Understanding the entrepreneurial characteristics of students will guide policy makers in designing courses and programs that promote innovative mindsets (Gilmartin et al., 2017).

Entrepreneurship and innovation drive a

country's economic growth, market competitiveness and technological change, with wealth creation and job generation as primary gains (Keat et al., 2011). Farr and Ford (1990) define innovation as "*the intentional introduction within one's work role of new and useful ideas, processes, products or services*". The Organisation for Economic Co-operation and Development (OECD) defines innovation as the "*implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations*" (Statistical Office of the European Communities, 2005, p. 46). Summarizing the relationship between innovation and entrepreneurship, Drucker (1985) held that "*Entrepreneurs innovate. Innovation is the specific instrument of entrepreneurship.*"

With over 1 million business enterprises operating in the country as of 2019, more than 99.5% are classified as micro, small, and medium enterprises (MSMEs), including majority, if not all, of startups in

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the Philippines. While MSMEs generated more than 60% of the country's total employment as of 2019 (over 5.5 million jobs), it only contributed less than 40% to GVA (Department of Trade and Industry, n.d.). Clearly, MSMEs have the potential to contribute more to GVA and provide more employment. The Philippines is a *factor-driven economy* (depends on agriculture and extraction businesses using more labor factors and natural resources); the target is to be an *efficiency-driven economy* (more competitive with economic development supported by industrialization) and eventually be *innovation-driven* (rely more on new knowledge and expanding into the service sector) (Velasco et al., 2017). On a global perspective, factor-driven economies have a discontinuance rate of 8%; efficiency- and innovation-driven economies have 5% and 3%, respectively. The Philippines recorded the highest discontinuance rate in the region. Its 12.2% discontinuance rate is more than 2.6x that of the 4.6% Asian average (Kelley et al., 2016; Velasco et al., 2017). The reasons for business exits include competition, poor business performance and profitability in saturated markets (Asia Pacific Foundation of Canada, 2018; PwC, 2020; Kelley et al., 2016). Government data indicated that more than half of the Philippines' MSMEs from various industries stopped their operations because of the COVID-19 pandemic (Mercado, 2020; Carlos, 2020).

Transitioning from factor-driven to the succeeding levels can be achieved via *enterprise upgrading*, which involves innovative activities that bring about improvements in products and in manufacturing and business processes. A study reported that less than 20% were successful enterprise upgraders (Hampel-Milagrosa, 2014). Further, Albert et al., (2018) reported that less than half of approximately 900 responding firms in a study have engaged in at least one innovation-related activity, and that MSMEs are less likely to engage in innovation-related activities. Reeg (2013) highlighted that most entrepreneurs in less developed and developing countries primarily engage in *creative imitation*, wherein businesses imitate the products and production processes that have been invented elsewhere in the world. In the Philippines, innovation is often not about something new to the world but something new to the society (Quimba et al., 2017). It is evident from these facts that it is necessary for Philippine MSMEs to have an innovative orientation to survive competition, especially during the pandemic, and get ahead of the competition.

Entrepreneurship involves two interacting elements: the sources of opportunities and the individuals who exploit these opportunities (Shane & Ventakaraman, 2000). This study contributes to the second element. A survey conducted by PwC (2020) reported that 64% of the founders of startups in the Philippines are below 36 years of age, with 16% having ages below 25. New businesses created by university students and graduates are a powerful tool to bring new knowledge to the market primarily through new products, services, process improvements and business models (Lane, 2021). Velasco et al. (2017) reported that 70% of Filipinos believe that they have the capability to be an entrepreneur and 54% believed that there is an opportunity in the country for entrepreneurial undertaking. However, almost 40% of Filipinos fear failure, and approximately the same percentage have intentions to be entrepreneurs. Understanding the entrepreneurial characteristics of these people will guide policy makers in designing courses and programs that promote innovative mindsets especially geared towards ensuring that the link between education and the industry, which are important elements of an innovation ecosystem, stay relevant and essential (Gilmartin et al., 2017).

This study adapted the innovation self-efficacy scale of Schar et al. (2017) for use with selected Filipino business and management college students. While the original scale was primarily used with engineering students (Gilmartin et al., 2017), this study reinforces the original scale and illustrates its robustness by applying it to a different context in the form of management students. The original scale can be applied to management students because the innovative activities associated with entrepreneurship are well within the field of business management. In fact, the original scale was constructed from the ground up in collaboration with innovative entrepreneurs and business managers/executives of different academic backgrounds (Dyer et al., 2008). The activity domain of interest for this study is that of entrepreneurship and innovation, both of which have strong links to business and management. Graduates of business or management studies are also more likely than others to hold managerial positions. More importantly, social science graduates like business management graduates greatly engage in innovative activities (Paunov et al., 2017). Therefore, especially to adhere to academic principles of research rigor and relevance, it only makes sense that similar measurements presently used in engineering students should also be

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tested in other fields of discipline that significantly has something to do with innovation and entrepreneurship, such as business management.

2. METHODOLOGY

Perceived self-efficacy is defined as “*people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances*” (Bandura, 1986), the extent or strength of a person’s belief in his own ability to complete tasks and reach goals (Bandura 1977, 1997). Perceived self-efficacy is an important predictor of both interests and career choice. Efficacy expectations moderate behavior, and in turn, behavior is moderated by one’s expectations of an outcome leading to action toward an outcome. Schar et al. (2017) specified that (1) perceived self-efficacy beliefs can vary depending on situational considerations, such as within or outside of a domain of expertise and the circumstances surrounding the occurrence of behavior and (2) perceived self-efficacy is agentic: the intention to make things happen by one’s action makes it particularly relevant in the pursuit of career goals.

Schar et al.’s (2017) five-item self-efficacy scale is based on Dyer et al.’s (2008) innovative behavior scale, which was developed using an inductive grounded theory study of innovative entrepreneurs. It has five constructs: *Questioning, Observing, Experimenting, Idea Networking and Associational Thinking*. An innovative entrepreneur’s work involves a lot of uncertainty so this person must be able to connect different ideas from different disciplines and often limited information amid ambiguous problems, failures, and uncertainty. Because self-efficacy influences engagement in specific behaviors and the ability to pursue certain tasks, an aspiring innovative entrepreneur may not engage or persist in innovative efforts if he/she does not believe in his/her abilities. The uncertainty that is entwined with the very nature of innovation requires a high level of persistence to overcome ambiguous problems and failures. Gerber et al. (2012) suggested that positive self-efficacy beliefs are tied to persistence and have the potential to influence innovation by strengthening creative performance, increasing the tendency to engage in expended effort, and inducing learning from failure.

Convenience sampling thru paper-based, face-to-face survey method was employed in this study (Appendix 1). The survey garnered a total of 332

business management students enrolled in one state institution, the University of the Philippines Diliman (UP), and two private institutions, De La Salle University (DLSU), and University of Asia and Pacific (UA&P). The respondents were at least of junior standing in their respective courses at the time of the survey. Age, family income/socio-economic status, and gender were also considered. The study determined item statistics, the representative item per construct using exploratory factor analysis (EFA), and the relationship of the research variables to the demographic data using ANOVA and independent t-test. All statistical tests were done using SPSS.

3. RESULTS AND DISCUSSION

There were almost the same number of male and female students (male – 48.5%; female – 51.5%). Majority of the respondents were senior students (84%) and were of 20 to 24 years of age. UP Diliman represents 44% of the respondents; 29% and 27% came from DLSU and UAP, respectively. In terms household monthly income, of 42% belong to the P201,000–P400,000 range, and 22% each from P200,000 and below and P400,001–P600,000 brackets; these three brackets comprise more than 80% of the total.

Business management students reported the highest level of innovation self-efficacy for Associational Thinking (\bar{x} =5.485), while the lowest level was for Questioning (\bar{x} =5.068). The highest rated construct in the original study for engineering students is Experimenting (\bar{x} =3.62), while Idea Networking (\bar{x} =3.27) and Questioning (\bar{x} = 3.28) got the lowest ratings. Exploratory factor analysis was carried out on the five construct, 21-question survey results using the Varimax rotation method in SPSS. The cut-off criteria are as follows: (1) total variance explained > 60% (2) factor loading > 0.6 (3) KMO and Bartlett’s Test > 0.5 and (4) communalities > 0.5. On a per question item basis, the highest factor loading is 0.922 (AT1) while the lowest is 0.747 (Q2); the average factor loading is 0.8331. All the Cronbach’s Alphas of the constructs are greater than 0.8.

The five constructs have moderate significant correlation with each other. This is expected because these skills are interrelated: *Questioning, Observing, Experimenting, and Idea Networking* are the primary

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drivers of *Associational Thinking* because the more diverse knowledge a person has, the more potential connections that can lead to creative ideas he can make. An innovator must engage in all these skills at the same time, albeit not in the same degree, to be successful in business (Dyer et al., 2008; Dyer et al., 2011).

Table 1 displays the summary of item statistics and factor loading; the highest value per construct is highlighted. All the highest factor loadings have values > 0.8 and they can singularly represent their respective construct, thus simplifying the instrument into these five representative questions. The mean values imply that students have moderate degree of self-efficacy, indicating that the students have some degree of innovation self-efficacy. Because these business management students were either junior or senior students in standing during the time of the survey, we want these potential entrepreneurs to have some degree of innovation self-efficacy when they graduate and join an enterprise or start their own. Self-efficacy is related to a person's confidence in his ability to evaluate and find a feasible solution to a problem and achieve his objective. A person with high innovation self-efficacy will trust his judgement on certain ideas that may be different from those of the majority. Hence, self-efficacy mediates between the idea and the desired outcome. This is important in the field of innovation management because not all creative ideas are translated into feasible and profitable products, services, or processes.

Associational Thinking got the highest value in terms of both mean and factor loading, reinforcing the argument that AT is the most important skill that an innovator must have as it enables this person to connect ideas that others find unrelated (Dyer et al., 2008). Similarly, because *Questioning* is the lowest-rated skill in terms of both means and factor loading, students are not confident enough in their ability to ask the right questions in relation to coming up with novel ideas. This is unfavorable because questioning is the "creative catalyst" for all the desired skills (Dyer et al., 2011). Innovators ask questions to empathize with current and potential customers/users, to understand why things are the way they are, and either to impose or eliminate constraints and force themselves to think out of the box to generate novel ideas. Had their self-efficacy to questioning been higher, it is possible that the students' self-efficacies in the other skills to be higher.

Table 1. Item statistics and factor loading summary

Construct	Items	Mean	Factor Loading	Cronbach's α
Questioning (Q)	Q2	5.208	0.747	0.8058
	Q4	5.030	0.834	
	Q5	4.883	0.834	
	Q6	5.151	0.763	
Observing (O)	O1	5.295	0.856	0.8612
	O2	5.265	0.829	
	O3	5.383	0.860	
	O4	5.449	0.817	
Experimenting (E)	E1	5.247	0.825	0.8671
	E2	5.096	0.857	
	E3	5.377	0.765	
	E4	5.075	0.843	
	E5	4.946	0.759	
Idea Networking (IN)	IN1	5.398	0.775	0.8714
	IN2	5.244	0.874	
	IN3	5.319	0.863	
	IN4	5.283	0.884	
Associational Thinking (AT)	AT1	5.401	0.922	0.8237
	AT2	5.569	0.922	

Comparing the highest-valued questions per construct based on the mean scores and the standardized loadings, one can see that the set of questions are very much different. The items based on mean scores represent the mindset that was cultivated to the junior and senior business students. These are the questions that respondents agree to or relate to the most. On the other hand, the items based on standardized loadings provide some insight as to what is important to the students. These questions are what ought to be developed by the degree programs of the business schools.

ANOVA and independent t-tests results show that the items in Table 2 exhibited statistically significant differences. The significant difference between the means of the variable Age in the construct *Observing* may be due to older students unintentionally using this skill less due to (1) reliance on stock knowledge and (2) inherent designs of the various degree programs that prevent the consistent use of this skill, resulting in less mastery. On the other hand, the significant differences between the means of the different schools with respect to the constructs *Experimenting*, *Idea Networking* and *Questioning* can be best explained by a combination of interacting factors: the mix of degrees of the business

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management students, differences in the program

Table 2. ANOVA and independent t test summary

ANOVA	
School	Statistically significant in IN
Age	Statistically significant in O
Independent t-test	
School	Statistically significant in E: UP > UA&P
	Statistically significant in IN: UA&P > UP
	Statistically significant in Q: DLSU > UA&P
Age	Statistically significant in O: 15 to 19yo > 20 to 24yo

designs of the different degrees, and nature and culture of the representative schools. Convenience sampling was used in this study, which targeted any junior or senior undergraduate business management students from any of the identified schools, regardless of actual degree. Even though all these students are business management majors, the purposes, and hence the design, of their respective degrees are very much different. Lastly, school characteristics, such as available resources, culture, and whether it is public or private in nature, affects the delivery method and teaching style of its faculties. Reviewing the curricula of the different degrees of these different schools will give a limited view of the actual differences. The most effective way is to "experience" the different courses themselves, which is not practical. Given the interplay of these factors, it is impossible to know the real reason(s) behind the differences in the selected categories.

4. CONCLUSIONS

The great number of MSMEs make them important drivers of growth, job creation, trade, and investment. Given the large gap between the total number of MSMEs vis-à-vis their corresponding contribution to the total GDP, the low success rate of small firms, the increasing competition in the startup scene, and the existing COVID-19 pandemic, MSMEs must innovate to be more competitive.

Most MSMEs are one-person undertakings where entrepreneur-owners maintain a remarkably

high level of control over business activities and performance (Reeg, 2013). An entrepreneur greatly influences enterprise upgrading thru his/her education, related business trainings, knowledge and skills, and intangible characteristics, such as motivation to succeed personally and financially, vision and long-term goals, and the drive to work intensively and productively. On the other hand, network integration, university/research institution linkages and the entrepreneur's personal and professional networks influence the innovative capability of MSMEs (Hampel-Milagrosa, 2014).

While competent behavior largely depends on acquiring knowledge and skills, self-efficacy facilitates achievements, motivation, and learning. Self-efficacy influences engagement in specific behaviors and the ability to pursue certain tasks. It is related to a person's confidence in his ability to evaluate and find a feasible solution to a problem and achieve his objective. In the case of an entrepreneur, high innovation self-efficacy will enable him/her to exert more effort to engage in innovative activities and try to overcome the problems that he/she will meet along the way. An entrepreneur will not be daunted by the criticisms and failures from the environment, especially from his peers and competitors. An entrepreneur's pursuit of creating novel products, processes or business model is an important means to differentiate offerings from the prevailing competition, especially against creative imitation mentioned. Educational institutions can ensure that business management students not only have the required skills to innovate but possess enough self-efficacy as well and knowing the factors that affect the development of students' self-efficacy can help these institutions in modifying educational programs that promote innovative mindsets and enhance the students' self-efficacy (van Dinther et al., 2010).

This study shows that Filipino business management students exhibit moderate degrees of self-efficacy, with *Associational Thinking* being their most important skill. This result is notable because *Associational Thinking* is the most important skill that an innovator must have; he must be able to connect ideas that others find unrelated. On the other hand, there is a need to improve the students' *Questioning* skills, seeing that it got the lowest-rated skill. As far as the respondents are concerned, the means represent the mindset that was cultivated to

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the junior and senior business students, while the standardized loadings represent what is important to the students and ought to be developed by the business schools. This presents a gap in the way students are currently learning innovation and entrepreneurship vis-à-vis what they are looking for, and therefore must be addressed. Lastly, the authors identified several possible factors that influence the observed differences in experimenting, idea networking and questioning skills of students from different schools. The mix of degrees of the business management students, differences in the program designs of the different degrees, and nature of the representative schools, including culture, are the interacting factors that were identified. Future research can delve deeper into these other factors in the pursuit of developing the appropriate mechanisms to cultivate innovative entrepreneurial skills more effectively.

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6. REFERENCES

- Albert, J. R. G., Quimba, F. M. A., Serafica, R. B., Llanto, G. M., Vizmanos, J. F. V., & Bairan, J. C. A. C. (2018). Measuring and examining innovation in Philippine business and industry.
- Asia Pacific Foundation of Canada. (2018). 2018 Survey of entrepreneurs and MSMEs in the Philippines: building the capacity of MSMEs through market access. Retrieved from <https://apfcanada-msme.ca/research/2018-survey-entrepreneurs-and-msmes-philippines-building-capacity-msmes-through-market>
- Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*, 84(2), 191.
- Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ, 1986, 23-28.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W H Freeman/Times Books/ Henry Holt & Co.
- Carlos, A. (2020, May 2). Filipino MSMEs weather the COVID storm. *The Manila Times*. Retrieved from <https://www.manilatimes.net/>
- Department of Trade and Industry. (n.d.). MSME Statistics. Retrieved from <https://www.dti.gov.ph/resources/msme-statistics/>
- Dyer, J. H., Gregersen, H. B., & Christensen, C. (2008). Entrepreneur behaviors, opportunity recognition, and the origins of innovative ventures. *Strategic Entrepreneurship Journal*, 2(4), 317-338.
- Dyer, J., Gregersen, H. B., & Christensen, C. M. (2011). *The innovator's DNA: mastering the five skills of disruptive innovators*. Boston, Mass.: Harvard Business Press.
- Drucker, P. F. (1985). *Innovation and entrepreneurship: practice and principles* (1st ed.). Harper & Row.
- Farr, J. L., & Ford, C. M. (1990). Individual innovation. In M. A. West & J. L. Farr (Eds.), *Innovation and creativity at work: Psychological and organizational strategies* (p. 63-80). John Wiley & Sons.
- Gerber, E. M., Marie Olson, J., & Komarek, R. L. (2012). Extracurricular design-based learning: Preparing students for careers in innovation. *International Journal of Engineering Education*, 28(2), 317 – 324.
- Gilmartin, S. K., Chen, H. L., Schar, M. F., Jin, Q., Toye, G., Harris, A., Cao, E., Costache, E., Reithmann, M., & Sheppard, S.D. (2017). Designing a longitudinal study of engineering students' innovation and engineering interests and plans. *The Engineering Majors Survey Project. EMS 1.0 and 2.0 Technical Report*. Stanford University Designing Education Lab, Stanford, CA, Technical Report.
- Hampel-Milagrosa, A. (2014). Micro and small enterprise upgrading in the Philippines: The role of the entrepreneur, enterprise, networks and business environment (No. 86). *Studies*, No. 86, Deutsches Institut für Entwicklungspolitik (DIE), Bonn.

2021 ASEAN UNIVERSITY NETWORK BUSINESS AND ECONOMICS VIRTUAL CONFERENCE

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Conference theme: "Enabling the Transformation of Resilient Business Environment and Innovation Ecosystem in the ASEAN"

Keat, O. Y., Selvarajah, C., & Meyer, D. (2011). Inclination towards entrepreneurship among university students: An empirical study of Malaysian university students. *International Journal of Business and Social Science*, 2(4).

Kelley, D., Singer, S., & Herrington, M. (2016). GEM 2015/2016 global report. Global Entrepreneurship Monitor.

Lane, C. (2021, March 21). 7 of the most successful student businesses started at university. QS Top Universities.
<https://www.topuniversities.com/student-info/careers-advice/7-most-successful-student-businesses-started-university>

Mercado, N. (2020, May 1). DTI: Over half of MSMEs in PH fully stopped operations due to virus outbreak. Inquirer.Net. Retrieved from <https://business.inquirer.net/>

Paunov, C., Planes-Satorra, S., & Moriguchi, T. (2017). What role for social sciences in innovation?: Re-assessing how scientific disciplines contribute to different industries. OECD Science, Technology and Industry Policy Papers, No. 45, OECD Publishing, Paris.

PwC. (2020). Charging ahead 2020: Philippine startup survey. PwC Philippines.

Quimba, F. M. A., Albert, J. R. G., & Llanto, G. M. (2017). Innovation activity of firms in the Philippines. Philippine Institute for Development Studies. Discussion Paper Series No. 2017-44.

Reeg, C. (2013). Micro, small and medium enterprise upgrading in low-and middle-income countries: a literature review (No. 15/2013). Discussion Paper.

Schar, M., Gilmartin, S., Harris, A., Rieken, B., & Sheppard, S. (2017). Innovation self-efficacy: a very brief measure for engineering students. In *Proceedings for the American Society for Engineering Education Annual Conference*, June 25-28. Columbus, OH.

Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217-226.

Statistical Office of the European Communities. (2005). Oslo manual: Guidelines for collecting and interpreting innovation data (No. 4). Publications de l'OCDE.

Van Dinther, M., Dochy, F., & Segers, M. (2011). Factors affecting students' self-efficacy in higher education. *Educational Research review*, 6(2), 95-108.

Velasco, A., Castillo, P., Conchada, M., Gozun, B., Largoza, G., Perez, J., & Sarreal, E. (2017). Philippine Entrepreneurship Report 2015-2016.

APPENDIX

Likert scale, 1=Not Confident, 7=Extremely Confident

Questioning (Q)	
Q1	Ask a lot of questions
Q2	Ask the right questions to get to the root of a problem
Q3	Ask more questions than my classmates
Q4	Ask the kind questions that change the way others think about a problem
Q5	Ask questions that challenge fundamental assumptions
Q6	Ask questions to understand why projects or designs underperform
Observing (O)	
O1	Think of new ideas by carefully watching people interact with products and services
O2	Generate new ideas by observing the world
O3	Observe how people use products and services to help me get new ideas
O4	Pay attention to everyday experiences as a way to get new ideas
Experimenting (E)	
E1	Experiment as a way to understand how things work
E2	Experiment to create new ways of doing things
E3	Be adventurous and seek out new experiences
E4	Actively search for new ideas through experimenting
E5	Take things apart to see how they work
Idea Networking (IN)	
IN1	Build a network of people whom I trust to bring a new perspective and refine my ideas
IN2	Seek the advice of students and faculty

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IN3	outside my circle of contacts to test ideas Reach out to people outside of my academic major to spark ideas for a new product or service	areas
IN4	Build a large network of contacts with whom I can interact with to get ideas for new products or services	
Associational Thinking (AT)		
AT1	Connect concepts and ideas that appear, at first glance, to be unconnected	
AT2	Connect ideas from different and diverse	

Duenwald, M. (2004, January 6). Slim pickingsL
Looking beyond ephedra. The New York Times,
p. F1. Retrieved October 12, 2004, from
LexisNexis.

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Landscape and overview of innovation activities in Philippine enterprises

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Abstract: In this data age, there has been a rapid transformation of the way things are done as a result of innovation. Innovation has always been regarded as the key to business growth and development. For small and medium enterprises (SMEs) in the Philippines to remain competitive, they need to face these increasing demands which require more innovation. The purpose of this study is to present an overview of innovative behavior and perception among SMEs surveyed from the 2015 World Bank Enterprise Survey for the Philippines. Analysis of the innovation components such as product innovation, process innovation, marketing innovation, and organizational innovation and mapping of the main innovative activities were examined. Results showed that SMEs do exert effort to innovate products or processes, but their innovation rate is still much lower as compared to large enterprises. The results also showed that SMEs spend less on formal research and development (R&D) activities and have less purchase or license of any patented or non-patented inventions. Moreover, SMEs provide less formal training to any of its employees specifically for the development and/or introduction of new or significantly improved product services and processes. Innovation showed a negative covariance which means that innovation and R&D expenditures tend to move in inverse directions. This situation should allow the government to come up with national policy interventions that support and encourage innovation especially for the SMEs

Key Words: Innovation; product; process; research and development (R&D); SM

1. INTRODUCTION

The small-and-medium scale enterprises (SMEs) in the Philippines are drivers for job creation and economic growth. According to the Philippines Statistics Authority (PSA) during the year 2019, 99.5% of all business in the country falls under the MSME category. These firms can have a huge potential opportunity for a considerable increased market access and tremendous growth with the ASEAN's current initiative towards regional market integration. For the country to become a major player

in the ASEAN market and in the regional production networks, these smaller businesses must be ready to face the challenges and opportunities the economic integration brings. Limited access to finance, information gaps, lack of technology and skills, and poor product quality and poor marketing were some of the huge challenges that hampers the advantage of the SMEs to compete internationally and to market their products abroad (Aldaba, 2012).

To deliver to its international commitment in a highly competitive economic region and to align its goals to the ASEAN Strategic Action Plan for MSME

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Development 2016-2025 and to the ASEAN Economic Community (AEC) Blueprint through the ASEAN Common Market and the APEC partnership, the Philippines formulated the Micro, Small and Medium Enterprise (MSME) Development Plan 2017-2022 with the vision to be more globally competitive - regionally integrated, resilient, sustainable, and innovative. The MSME Development Plan 2017-2022 has three focus areas with corresponding themes of emphasis. First, business environment, with emphasis on improving the business regulatory requirements and procedures as well as maximizing access to finance. Second, business capacity, with the aim of strengthening human capital development and improving innovation and technological competitiveness of MSMEs to transform and create new business models and enterprises. Lastly, business opportunities whose aim is broadening access to markets. (Department of Trade and Industry, 2018)

Innovation has always been regarded as the key to business growth and development. In this data age, there has been a rapid transformation of the way things are done as a result of innovation. Additionally, the unexpected occurrence of the COVID-19 pandemic late 2019 and virtually the whole year of 2020 has been a pronounced challenge to strive and continue to stay competitive despite volatile demand and supply.

The Philippine government has stepped up and enacted several policies. Some of which are targeted with alleviating additional expenses like penalties and fees. Another is to provide 30 days grace period on rents for residential and commercial properties without any recurring interests, penalties, and fees. There is also a subsidy program for eligible employees, as well as a lending program for enterprises with assets that fall under certain categories. (Department of Trade and Industry, n.d.)

According to a survey by the International Trade Center, in collaboration with the Department of Trade and Industry (DTI), respondents stated that their firm develops and implements new or improved processes and goods frequently. In addition to that, the report cites formal investments on research and development were the reasons for innovations which subsequently resulted to intellectual property protection. (International Trade Center, 2020) Furthermore, the same survey has shown that individuals exhibiting entrepreneurial characteristics influences openness to change.

Using data provided by the Philippine Statistics Authority (PSA), DTI claims that 99.52% of business operating in the Philippines during the year 2018 are categorized as MSMEs. This sector was able to provide 35.7% of total value added, with manufacturing leading with 6.87% (Bolido, 2020)

The world is in a constant state of development, and as such, products and services must progress to keep up with the demands of improvement. Humans are naturally inclined to better themselves. Thus, innovation will always be present as long as humans continue to find ways to improve.

From the Oslo Manual (2005) by OECD/Eurostat, innovation is the implementation of significant changes and new enhancements to improve the use of products, services, processes and practices. It is a continuous process where firms collect and make sense of new knowledge derived from these changes. Innovation is the central key to boosting productivity and this goes far beyond research and development (R&D).

The purpose of study is to gain understanding of the experiences and perceptions of SMEs in terms of innovation. Analysis of the innovation components such as product innovation, process innovation, marketing innovation, and organizational innovation and mapping of the main innovative activities were examined. Moreover, the Oslo Manual (2005) identified four types of innovation. These are as follows:

- a) Product Innovation: A good or service that is new or significantly improved. This includes significant improvements in technical specifications, components and materials, software in the product, user friendliness or other functional characteristics.
- b) Process Innovation: A new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software. The intention of this innovation is to decrease unit costs or increase quality of production.
- c) Marketing Innovation: A new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing.

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This is aimed to better address customer needs, and opening new markets, among many others.

- d) **Organizational Innovation:** A new organizational method in business practices, workplace organization or external relations. An example of this is implementation of the four-day work week, and a work from home setting.

An innovative firm is when it is able to introduce new or substantially improved goods or services, including processes or methods. In the questionnaire used by the World Bank, the following terms were defined:

- a) "Main new" means the establishment introduced new goods or services, including processes or methods, but not necessarily new to the market.
- b) "Significantly improved" means the establishment introduced substantially improved goods or services, including processes or methods.

These "main new" or "significantly improved" product or service represents the largest proportion of the firms' sales in value during fiscal year. Additionally, another key indicator of an innovating firm is its spending on formal research and development activities, either in-house or contracted with other companies, excluding market research surveys.

2. METHODOLOGY

In order to describe the different ways Philippine SMEs are innovating, survey data collected by World Bank for the 2015 Enterprise Survey for the Philippines was used. Business owners and top managers in 1,335 firms were interviewed from November 2014 to May 2016 where 905 are SMEs (5-99 employees). Most firms had January 2014 to December 2014 as their last complete fiscal year. Hence, data collected covers the period "during the last 3 years" may refer to data as early as January 2014 depending on the survey period indicated, starting month of last complete fiscal year.

The firms covered in the survey are limited to those firms in the manufacturing and services industries: food and beverages, garments, chemicals,

rubber and plastics, fabricated metal, electronic products, other manufacturing, retail, and other services.

Descriptive analysis was used to map the current innovation characteristics and activities of the SMEs. They provide simple summaries about the establishments such as frequencies, percentages, and averages. Moreover, a logistic regression was done to look into the key variables that provide greater likelihood for establishments to engage or perform evenly in terms of innovation in the context of research and development spending. Finally, in order to measure the relationship between innovation and research and development (R&D) expenditures, covariance was computed. A positive covariance indicates that two variables tend to move in the same direction while negative covariance means that two variables tend to move in inverse directions.

3. RESULTS AND DISCUSSION

SMEs upgrading is manifested not only through the increase in workforce size but also in terms of qualitatively innovative changes. These innovative changes include product innovation or creating new products, process innovation or improving the process of creating your products, organizational innovation or making business operations more efficient and marketing innovation or implementing a new marketing strategy.

The size of the enterprise and its access to credit line are the significant factors that could influence SMEs to innovate. Those with greater likelihood of performing well in terms of innovation with R&D spending are those that have access to credit and size of the firm.

3.1 Product Innovation

Results of the study showed that one-third of the enterprises have introduced a new or significantly improved products or services. More than half (56%) of these enterprises have new or significantly improved products or services that were also new for the establishment's main market. These main new or significantly improved their products or services also have completely new functions. Moreover, less than half (43%) of the main new or significantly improved their products or services were cheaper to produce or

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offer. In terms of quality, majority (94%) of the enterprises reported that the main new or significantly improved their products or services were better quality product or service. SMEs have higher average percentage of total sales (31%) that is represented by sales from the main new or significantly improved product or service while 21% only for large firms.

3.2 Process Innovation

In terms of process innovation, 31 percent of the enterprises are process innovators or have introduced any new or significantly improved methods of manufacturing products or offering services. Twenty percent of the enterprises have introduced any new or significantly improved logistics, delivery or distribution methods for inputs, products or service. Moreover, 25 percent of the enterprise have introduced new or significantly improved supporting activities for their processes such as maintenance systems or operations for purchasing, accounting or computing. Eighty-two percent of the enterprises have new or significantly improved process automate manual processes. While 63 percent have new or significantly improved process introduce a new technology or method.

3.3 Organizational Innovation

During the last three years, 25.41 percent of the enterprises introduced new or significantly improved organizational structures or management practices.

3.4 Marketing Innovation

In terms of marketing innovation only 26 percent of the enterprises have introduced or implemented new or significantly improved marketing strategy.

3.5 Innovation Activities

About 18 percent of the enterprises spent on research and development (R&D) activities amounting to approximately Php336,626. In terms of providing formal training to any of its employees specifically for the development and/or introduction of new or significantly improved products or services and

processes, 40 percent of the enterprises provided formal training.

3.7 Covariance Analysis

Covariance between product, process, organizational and marketing innovation and R&D expenditures. All kinds of innovations showed a negative covariance which means that innovation and R&D expenditures tend to move in inverse directions.

4. CONCLUSIONS

4.1 Conclusions

SMEs do exert effort to innovate products or processes resulting to new or significantly improved product or service which contributed to improvement in total sales. They spend less on formal research and development (R&D) activities and have less purchase or license of any patented or non-patented inventions. Finally, they provide less formal training to any of its employees specifically for the development and/or introduction of new or significantly improved products or services and processes.

Business capacity is key factor to innovation. Logistic regression showed that firm size, access to funding or credit line have a higher likelihood for a firm to innovate its product or service or process. Product, process, manufacturing and organizational innovation have negative covariance which means that innovation and R&D expenditures tend to move in inverse directions.

4.2 Policy Recommendations

Government should come up with national policy interventions that support and encourage innovation especially for the small and medium enterprises (SMEs). Based on the Economic Research Institute for ASEAN and East Asia (2014), its ASEAN SME Policy Index in terms of the eight policy dimensions showed that Philippines barely average in the ASEAN in terms of policy and business environment for SMEs. These include spanning institutional framework, cheaper and faster start-up and better legislation and regulation for SMEs, access to information and supporting services, access to finance, technology and technology transfer,

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international market expansion, promotion of entrepreneurial education, and developing stronger, more effective representation for SMEs' interests.

Since access to credit has been identified as key factor to influence firm's participation to innovation of products and services, the government must intensify its program in this area. For existing government programs on SMEs specifically on financing SMEs, these must be evaluated in terms of scope and delivery with a view to improve and broaden support services for start-ups and especially for the most dynamic young enterprises. The SETUP program (Small Enterprise Technology Upgrading Program) launched by the Department of Science and Technology at the end 2018 is one government program supportive of the development of SMEs. The SETUP program was put up with the aim of providing funding assistance on adopting technology innovations, improving business operations, and boosting productivity and competitiveness. An allotment of 4.2 billion pesos of innovation funds for tech innovations are awaiting our SMEs (including the micro enterprises) for them avail of the government's program.

The country must also strengthen the MSME Development Council of the Department of Trade and Industry (DTI) in its mandate to engage the government offices with vital contributions and to expand the private sector's role and participation. One of the priority areas of the ASEAN Strategic Action Plan for SME Development 2016-2025 is the integration of entrepreneurship values and skills in the educational system spanning all levels. The country's Department of Education can initiate the design of the K+12 curriculum to instill entrepreneurship values for the young generation and be able to acquire of entrepreneurship skills that can be put into practice.

The government may also look into incentive programs for innovators in the form of tax breaks, business promotion opportunities, and a recognition or awards system to attract and retain more local innovators in the country. In conjunction with the occurrence of the COVID-19 pandemic, it is recommended to continue the assistance program even after the pandemic has passed. This is to continue easing the burden brought by the unforeseen situation, and further assist these enterprises to get back on their feet.

With the ASEAN's movement toward a single market and production base under the ASEAN Economic Community (AEC), the country's SMEs should be able to level up its competition and standards with enough government efforts and initiatives to continue to create a culture and mindset of innovation, and secure an environment enabling all the SMEs to help them face the challenges and opportunities that lie ahead as they enter an increasingly global and competitive market.

5. ACKNOWLEDGMENTS

The author would like to thank God for giving me this opportunity and guided me throughout this venture.

6. REFERENCES

- ABC, U. (2014). Beyond AEC 2015: Policy Recommendations for ASEAN SME Competitiveness, ASEAN SME Working Group.
- Aldaba, R. M., & Aldaba, F. T. (2014). *Toward competitive and innovative ASEAN SMEs: Philippine SME policy index 2012* (No. 2014-30). PIDS Discussion Paper Series.
- ASEAN SMEs - Jakarta: Economic Research Institute for ASEAN and East Asia, 2008.
- Bolido, L. (2020, January 17). Small businesses, big economic impact. *Inquirer*. Retrieved from: <https://business.inquirer.net/287195/small-businesses-big-economic-impact>
- Department of Trade and Industry. (n.d.) 2019 MSME Statistics. *Department of Trade and Industry*. Retrieved from: <https://www.dti.gov.ph/resources/msme-statistics/>
- Department of Trade and Industry. (n.d.) DTI Assistance and other government initiatives for MSMEs. *Department of Trade and Industry*. Retrieved from: <https://www.dti.gov.ph/covid19/assistance/>

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Department of Trade and Industry (n.d.) Micro, Small and Medium Enterprise Development Plan 2011-2016. *Department of Trade and Industry*. Retrieved from: <https://www.dti.gov.ph/negosyo/msme-resources/msmed-plan/>

Department of Trade and Industry. (2018). MSME Development plan 2017-2022. *Department of Trade and Industry*. Retrieved from: https://www.dti.gov.ph/sdm_downloads/msme-development-plan-2017-2022/

International Trade Centre. (2020). *Promoting SME Competitiveness in the Philippines: Compete, Connect and Change to Build Resilience to Crises*. ITC, Geneva.

Mendoza, R., & Melchor, M. (2014). SMEs in the Philippines: Going beyond survival. *Rappler*. Retrieved from: <https://r3.rappler.com/thought-leaders/74674-smes-philippines-asian-institute-management>

OECD/Eurostat (2005), *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data, 3rd Edition*, The Measurement of Scientific and Technological Activities, OECD Publishing, Paris, <https://doi.org/10.1787/9789264013100-en>.

Secretariat, A. S. E. A. N. (2015). ASEAN Strategic Action Plan for SME Development 2016–2025. *Jakarta: ASEAN Secretariat*.

The Manila Times. (2013). Barriers hinder growth of SMEs – PIDS. (2013). *The Manila Times*. Retrieved from: <https://www.manilatimes.net/2013/04/24/business/barriers-hinder-growth-of-smes-pids/420>

World Bank Enterprise Survey. <http://www.enterprisesurveys.org/data>.

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Cryptocurrencies, a Transformational Catalyst for the Philippines' Digital Economy: An Analysis

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Abstract: Since 2017, the Bangko Sentral ng Pilipinas (BSP) has issued rules and regulations for cryptocurrency exchange platforms in the Philippines. However, studies on cryptocurrency awareness, usage, remittance, and trading in the Philippine market are minimal. This study aims to determine Filipinos' awareness and confidence level to use and trade cryptocurrencies in the Philippines as the economy transforms from a traditional economy to a digital economy—an online survey posted on social media platforms gathers the primary data used in this study. The study results revealed that Filipino respondents were aware of cryptocurrencies but are reluctant to use them for payment, remittance, and/or trading purposes because they do not fully understand their complex nature and consider them too risky compared to other tradeable assets. Moreover, the study showed that respondents were unaware of platforms and merchants that enable them to buy, sell, remit, and trade such assets in the Philippines.

Key Words: Cryptocurrency; Blockchain Technology; Virtual Currency; Exchange Platforms; Digital Economy; Banko Sentral ng Pilipinas (BSP); Philippines

1. INTRODUCTION

The COVID-19 (coronavirus) pandemic underscores the importance of digitalization for economic and social resilience. COVID-19 is restricting mobility and economic activity around the world, and the Philippines is no exception. As mobility restrictions and social distancing measures limit face-to-face interactions and activities, the availability of affordable digital technologies has emerged as a key determinant of resilience. Indeed, digital technologies allow businesses, the government, and schools to pursue operations online rather than completely shutting down. E-commerce and digital payments have permitted business transactions to continue and goods to be delivered; online communication platforms have facilitated home-based work, virtual meetings, and remote classes; and government agencies in many countries have used online processes to quickly deliver social assistance to vulnerable households (The World

Bank, Philippines Digital Economy Report 2020, p. 1).

Cryptocurrency is a type of virtual currency that is mined using Blockchain technology. With Blockchain, transactions between two parties can be validated without any participation of a third party or banks as intermediaries but through a public ledger spread across the Bitcoin network (Ferreira et al., 2018).

In 2017, Bangko Sentral ng Pilipinas (BSP) released Circular No. 944 or known as "Guidelines for Virtual Currency Exchanges." The said BSP Circular states that the agency recognizes that cryptocurrencies can make payments and remittances faster and more economical for domestic and international transactions. However, BSP clarifies that it is not promoting cryptocurrencies but intends to regulate them because of the various risks inherent in using cryptocurrency transactions, such as but not

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limited to Money Laundering, Terrorist Financing, Information Technology Risks, Consumer Protection Violations, and Financial Stability.

With the issued implementing guidelines legalizing virtual currencies in the Philippine Market, various cryptocurrency exchanges registered as "Remittance and Transfer Companies (RTC) with Virtual Currency Exchange" were established. As of July 2020, 16 Virtual Exchanges were already registered with the BSP. A Virtual Currency exchange provides an online platform for the conversion and/or trade of cash to cryptocurrencies, cryptocurrencies to cash, and cryptocurrencies to other cryptocurrencies. The most known and actively traded cryptocurrency for local and international markets is Bitcoin, which is also the first cryptocurrency.

Since 2017, cryptocurrency exchanges were already established in the Philippines, and their transactions are currently regulated and monitored by BSP. However, research on the cryptocurrency awareness, usage, remittances, and trading of available cryptocurrencies in the Philippine market is minimal. Thus, this study aims to analyze Filipinos' awareness of cryptocurrencies and their confidence level of usage for payments, remittances, and trading purposes.

Determining the current level of cryptocurrency awareness and confidence level in usage for payments, remittances, and trading purposes of Filipino respondents may help give insights into where to focus on full-scale research on cryptocurrencies that will eventually lead to providing regulators with a new perception that may help in improving the existing cryptocurrency policies and regulations. Understanding the behavioral factors and barriers of entry of Filipino respondents may also guide Virtual Exchange platforms in creating new marketing initiatives to boost the growth of the cryptocurrency market in the Philippines.

Mazamabani and Mutambara (2019) used the Theory of Planned Behavior to predict Cape Town students' intention in adopting cryptocurrencies as a Financial Technology innovation in South Africa. Given that South Africa is one of the emerging markets similar to the Philippines, the research aims to replicate a similar conceptual framework.

ElBahrawy et al. (2017) observed that cryptocurrency markets, in general, are growing

exponentially. He added that with this exponential growth, a decreasing trend in the market share of Bitcoin was observed. Tkachenko et al. (2019) stressed that given that cryptocurrency markets are growing across the globe, risks of legalizing criminal income should also be considered by countries, and setting up appropriate regulatory policies to mitigate this is needed.

Panova et al. (2019) identified certain countries such as the United Kingdom, Australia, and other EU countries as early adopters of cryptocurrencies. Even if not everyone identified legalized cryptocurrencies, no inhibiting law was passed between the countries. They added that the USA and Canada are the current champions in legalizing cryptocurrencies for having comprehensive policies and regulations on cryptocurrency transaction reporting and taxation. Chyzhmar et al. (2019) stated that most courts worldwide are having difficulties addressing gray areas in the cryptocurrency market.

Lerer (2019) posited that the Internal Revenue Service (IRS) in the United States (US) taxes cryptocurrencies based on the type of transaction. He detailed that cryptocurrencies are generally treated as property, so any exchange of cryptocurrencies with cash or properties will follow taxation principles of a property being sold, considering the gains and losses in the exchange. Lerer (2019) also stated that the IRS would tax cryptocurrency coins held as capital assets and exchanged in the market for gains in the same principle as taxing capital gains. Capital gains tax is also followed for exchanges between cryptocurrency coins even if no actual was involved. Lastly, Lerer (2019) added that cryptocurrency mining would be taxed and included in the owner's gross income based on the fair market value when the coin was awarded.

Sardar (2020) observed that despite guidelines on the taxation of cryptocurrencies provided by the IRS, only a few taxpayers engaged in cryptocurrency transactions reported their Capital Gains. Sardar (2020) added that a Treasury Inspector for Tax Administration (TIGTA) asserted in a report that cryptocurrencies are used for tax evasion and other illegal activities. This is the same case in Malaysia, where the government made only minimal efforts in promoting the use of cryptocurrency due to the fear of it being used for illegal transactions (Zulhuda and Sayuti, 2017). In Ukraine, it was also observed that the government fears that the use of cryptocurrency will result in lower tax revenues of the

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country (Volosovych & Baraniuk, 2018).

2. METHODOLOGY

The Theory of Planned Behavior (BPT) provided the basis for the conceptual framework for this study, as some attitudes, behaviors, and beliefs explain how digital assets are used and exchanged.

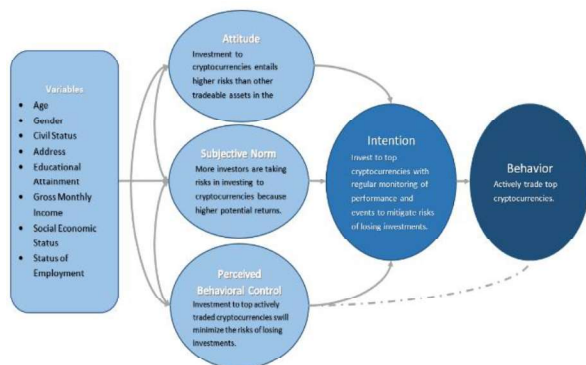


Fig. 1. The conceptual framework of the study

The research did not cover specifics in the technical aspects of the blockchain technology, but more on the general features, benefits, and risks of the said digital asset.

Due to limitations caused by the COVID-19 pandemic and ECQ restrictions imposed by the Philippine Government, purposive sampling was used in this study. Respondents of the study were limited to the existing social network of the researchers and to members of social media platforms, which is majorly composed of Millennials and members of Generation Z. Using the Filipino population of about 106 million and a confidence level of 90 percent with a margin of error of 10 percent, a sample size of at least 69 respondents was required.

The study sought to determine the respondents' level of awareness of using cryptocurrencies for payment, remittance, and trading purposes. Specifically, it sought to answer the following questions: (1) What is the profile of respondents who own and do not own cryptocurrencies in terms of age, monthly gross income, gender, civil status, highest educational attainment, source of income? (2) What is the percentage of respondents that are familiar with the existence of at least one (1) cryptocurrency? (3) What is the frequency and volume

of cryptocurrency transactions performed by respondents in their payments, remittances, and transactions? (4) What is the confidence and satisfaction level of the respondents in terms of conversion to cash and vice versa, security of digital assets, and customer support with their Virtual Currency Exchange Platform?

Descriptive analysis was used in this study to determine the mean and standard deviation of age, income, confidence level, satisfaction rating, transaction amount, transaction frequency, trading volume, and usage.

3. RESULTS AND DISCUSSION

This section will address the results and analysis of the 79 online surveys gathered by researchers. However, it should be noted that some respondents missed some questions, so the percentage of those questions was based on the actual number of responses.

Table 1. Survey data on the respondents' experience owning a cryptocurrency

Owning a cryptocurrency		
With experience	10	87.3 %
No experience	69	12.7 %
Total	79	100.0 %

Table 2. Survey data on cryptocurrencies respondents are familiar with.

Cryptocurrency	No. of Familiar Repondent (Out of 77)	Percentage (%)
Bitcoin	61	79.2%
Ethereum	35	45.5%
Ripple	14	18.2%
Bitcoin Cash	14	18.2%
Litecoin	10	13.0%
Tether	9	11.7%
None of the Above	14	18.2%

As shown in Table 1, only 10 of 79 (12.7%) had experienced possession of a cryptocurrency. This is despite 63 out of 77 respondents (81.8%), breakdown shown in Table 2, said that they are familiar with the existence of at least one (1) of the top cryptocurrencies.

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The results also show that 61 out of 77 respondents (79.2%) are familiar with Bitcoin, while Ethereum only follows at 35 (45.5%). The large lead also confirms that Bitcoin is still the most well-known cryptocurrency among respondents.

Table 3. Survey data on respondents' monthly gross income (MGI).

Monthly Gross Income (MGI)	WITH experience	WITHOUT experience
Number of Responses	8	57
Mean MGI	117,125	45,667
Standard Deviation	6.76	4.97
Minimum MGI	14,000	0
Maximum MGI	500,000	300,000

For the monthly gross income shown in Table 3, there is a significant difference in the mean and range. This suggests that respondents with higher incomes are more likely to enter the cryptocurrency market.

Table 4. Survey data on respondents' gender.

Gender	With exp	Without Exp
Responses	10	67
Females	2	34
Males	8	33

As shown in Table 4 and a Chi-square test result of 0.069, data indicates a significant association between gender and cryptocurrency experience. Male respondents are more likely to invest in cryptocurrency than female respondents.

Other profiling factors such as Age, Civil Status, Educational Attainment, and Source of Income did not significantly associate with cryptocurrency experience.

Table 5. Survey data on frequency and average number of transactions for respondents with cryptocurrency experience.

Particular	Out of 10 with Experience	Other Information
Trading	6	60%
Mean Volume	PHP 22,000	Min=1,000, Max=50,000
Mean Frequency	29 per year	Min=2, Max=100
Remittance	3	30%

Mean Volume	PHP 9,667	Min=4,000, Max=20,000
Mean Frequency	3 per year	Min=1, Max=5
	2	20%
Payment		
Average Volume	PHP 2,750	Min=500, Max=5,000
Frequency	8	Min=5, Max=10

As shown in Table 5, most respondents use cryptocurrencies for trading purposes. With a range from PHP1, 000 to PHP 50,000. Trading frequency averaged 29 transactions per year with a maximum of 100 transactions per year. In addition, only a few respondents with cryptocurrency experience carried out payments and remittances. The figures for patronage, frequency, and volume are significantly lower compared to trading data. Respondents also revealed that cryptocurrency payments were made to retail stores outside the Philippines.

Table 6. Satisfaction and Confidence Level Survey Results for Experienced Respondents.

Statement	Strongly Disagree=1, Strongly Agree=5
1. I can convert cash into cryptocurrency with ease.	4.40
2. I can convert Cryptocurrency into Cash with ease.	3.60
3. I feel secured when using my VC Exchange	3.10
4. My VC Exchange provides excellent customer support	3.00

As shown in Table 6, among the ten respondents who had used cryptocurrencies, a score of 4.40 suggests that converting cash to cryptocurrency is fast and easy. However, conversion back to cash is more complicated and may be attributable to limitations in disbursement outlets and/or processing time before their Virtual Currency platform may disburse cash proceeds.

The same respondents were consistently neutral on platform security and customer support. The data suggest that virtual exchange platforms can focus on these categories to enhance customer

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satisfaction and confidence. A low rating for security can be attributed to the anonymity feature of the cryptocurrency. Transfer of cryptocurrencies does not require intermediaries to execute transfers; therefore, any account hacked through social engineering or other methods means that the hacked account owner can no longer retrieve and trace the stolen cryptocurrencies.

Table 7. Survey results on factors that prevent inexperienced respondents from using and trading cryptocurrency.

Factor	Out of 68 responses without experience	Percentage (%)
1. I do not feel secure owning cryptocurrencies	30	44.1%
2. I do not know where to buy/sell cryptocurrencies	29	42.6%
3. I prefer buying other tradeable assets	29	42.6%
4. I do not know the features and benefits of crypto	28	41.2%
5. Cryptocurrency values are too volatile	27	39.7%
6. I do not understand what cryptocurrencies are	26	38.2%
7. I do not know stores accepting cryptos as payment	20	29.4%
8. I do not see the point of owning cryptocurrencies	10	14.7%
9. Fear	1	1.47%

Of the 69 respondents who had no experience in owning a cryptocurrency, only 27 (39.1%) indicated their intention to use or trade it in the future. This can be attributed to the barriers identified by respondents, as seen in Table 7.

The major concerns stem from the lack of understanding of cryptocurrencies, familiarity with the institutions that accept and convert cryptocurrencies, and market price volatility. Since cryptocurrencies are very technical, respondents are more reticent to invest and secure something they cannot fully understand. This data suggests that

virtual currency exchange platforms may consider having information drives to educate investors about cryptocurrencies.

Second, respondents are unaware of where to buy, sell or exchange cryptocurrency. Despite the increasing number of trading platforms registered, they are expected to develop more visible marketing initiatives on the Filipino market. Alternatively, they may choose to offer other value-added products and services to increase their visibility.

Finally, cryptocurrencies are highly volatile from a pricing perspective. Price movements remain erratic, so technical and fundamental trading methods are not effective vis-à-vis other marketable assets.

4. CONCLUSIONS

81.8% of the respondents were aware of at least one (1) cryptocurrency, with Bitcoin as the most popular and Ethereum. Only the Monthly Gross Income and gender out of the several profiling factors were seen to have a significant association with having cryptocurrency experience among the respondents.

However, there are a number of factors that restrict respondents from trying to own a cryptocurrency. Said factors include, but are not limited to, the lack of knowledge on how cryptocurrency works due to its very technical nature, limitations in the number of institutions that accept and remit cryptocurrencies, the risks inherent to cryptocurrencies, and the erratic volatility of its price movements in the trading market.

Respondents with no cryptocurrency experience are more likely to venture into conventional assets such as term deposits, treasury bills, bonds, equities for financial returns.

Among the respondents with experience in owning a cryptocurrency, it is mainly used in trading for investment gains. Payments using cryptocurrencies were minimal and may be attributable to a limited number of Philippine retail stores that accept cryptocurrencies as payment. Remittance of cryptocurrencies is also minimal and may be attributable to the non-existence of intermediaries such as banks because incorrectly remitted funds can no longer be traced for refunded.

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Respondents with cryptocurrency experience are generally satisfied with converting cash to cryptocurrencies of their Virtual Currency Exchange platform. However, respondents identified that the security and after-sales support of Virtual Currency Exchange platforms still needs improvement.

5. RECOMMENDATIONS

Virtual currency exchange platforms should promote cryptocurrency awareness and usage through marketing initiatives and information campaigns. They should also consider increasing customer satisfaction by providing after-sales support and security for their platforms against hackers.

The establishment of more retail stores in the Philippines that accept cryptocurrencies as payments is vital to transforming the Filipino economy into a digital economy.

In addition, financial intermediaries in the Philippines should adopt more stringent security measures to ensure digital transactions such as cryptocurrency remittances and their conversion into cash and vice versa.

Further research can be carried out by using real data from virtual currency platforms to better analyze cryptocurrency customer usage and satisfaction.

A follow-up study may also be undertaken to investigate the historical prices of cryptocurrencies to determine which factors trigger significant increases or decreases in the prices of cryptocurrencies.

Finally, a study may also be done for the effects of the price movement of the most popular cryptocurrency, bitcoin, on the price movement of other cryptocurrencies in the market.

6. REFERENCES

- Alfieri, E., Burlacu, R., & Enjolras, G. (2019). On the nature and financial performance of bitcoin. *The Journal of Risk Finance*, 20 (2), 114-137. Do: <http://dx.doi.org.lib1000.dlsu.edu.ph/10.1108/JR-F-03-2018-0035>
- Cassidy, J., Cheng, M. H. A., Le, T., & Huang, E. (2020). A toss of a (bit) coin: The uncertain nature of the legal status of cryptocurrencies. *Journal of Tax Research*, 17 (2), 168-192. Retrieved from <https://0-search-proquest-com.lib1000.dlsu.edu> . PH/docview/2397708839? Accounted=190474
- Chu, D. (2018). BROKER-DEALERS FOR VIRTUAL CURRENCY: REGULATING CRYPTOCURRENCY WALLETS AND EXCHANGES. *Columbia Law Review*, 118 (8), 2323. Retrieved from <https://0-search-proquest-com.lib1000.dlsu.edu.ph/docview/2165623383?Accounted=190474>
- Chyzhmar, K., Yunin, O., Paterylo, I., Aliksieienko, I., & SheCryptocurrencieshenko, S. (2019). PROBLEM OF PROTECTION AGAINST CYBER CRIMES IN THE FIELD OF CRYPTOCURRENCY CIRCULATION. *Journal of Legal, Ethical and Regulatory Issues*, 22, 1-6. Retrieved from <https://0-search-proquest-com.lib1000.dlsu.edu.ph/docview/2330971691?Accounted=190474>
- Costigan, S., & Gleason, G. (2019). What if Blockchain cannot be blocked? *Cryptocurrency and international security. Information & Security*, 43 (1), 13-20. Do: <http://0-dx.doi.org.lib1000.dlsu.edu.ph/10.11610/isij.4301>
- ElBahrawy A, Alessandretti L, Kandler A, Pastor-Satorras R, Baronchelli A. 2017 Evolutionary dynamics of the cryptocurrency market. *R. Soc. Open source*. 4: 170623.
- Ferreira, M., Rodrigues, S., reels, C. I., & Maximiano, M. (2018). Blockchain: A Tale of Two Applications. *Applied Sciences*, 8 (9) <http://0-dx.doi.org.lib1000.dlsu.edu.ph/10.3390/app8091506>
- Hudson, R., & Urquhart, A. (2019). Technical trading and cryptocurrencies. *Annals of Operations Research*, 1-30. Do: <http://0-dx.doi.org.lib1000.dlsu.edu.ph/10.1007/s10291-019-0035-1>

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dx.doi.org/lib1000.dlsu.edu.ph/10.1007/s10479-019-03357-1

<http://dx.doi.org/lib1000.dlsu.edu.ph/10.1453/jsas.v7i1.2031>

Ivashchenko, A. I. (2016). USING CRYPTOCURRENCY IN THE ACTIVITIES OF UKRAINIAN SMALL AND MEDIUM ENTERPRISES IN ORDER TO IMPROVE THEIR INVESTMENT ATTRACTIVENESS. *Problem Ekonomiky*, (3), 267-273. Retrieved from <https://search-proquest-com.lib1000.dlsu.edu.ph/docview/2041573245?Accounted=190474>

Panova, O., Leheza, Y., Ivanytsia, A., Marchenko, V., & Oliukha, V. (2019). INTERNATIONAL MODELS OF LEGAL REGULATION AND ETHICS OF CRYPTOCURRENCY USE: COUNTRY REVIEW. *Journal of Legal, Ethical and Regulatory Issues*, 22, 1-6. Retrieved from <https://search-proquest-com.lib1000.dlsu.edu.ph/docview/2330971799?Accounted=190474>

Kumar, A. S., Nagaraju, T., & Ajaz, T. (2020). On the informational efficiency of the cryptocurrency market. *IUP Journal of Applied Economics*, 19 (1), 47-56. Retrieved from <https://search-proquest-com.lib1000.dlsu.edu.ph/docview/2371664821?Accounted=190474>

Park, H. W., & Lee, Y. (2019). HOW ARE TWITTER ACTIVITIES RELATED TO TOP CRYPTOCURRENCIES' PERFORMANCE? EVIDENCE FROM SOCIAL MEDIA NETWORK AND SENTIMENT ANALYSIS. *Drustvena Istrazivanja*, 28 (3), 435-460. Do: <http://dx.doi.org/lib1000.dlsu.edu.ph/10.5559/di.28.3.04>

Li, K. (2018). PRIMER: ICO regulation in Asia. *International Financial Law Review*, Retrieved from <https://search-proquest-com.lib1000.dlsu.edu.ph/docview/2014878524?Accounted=190474>

Sardar, M. (2020). New IRS cryptocurrency enforcement efforts and opportunities to become compliant: Certified public accountant. *The CPA Journal*, 90 (1), 54-55. Retrieved from <https://search-proquest-com.lib1000.dlsu.edu.ph/docview/2341662783?Accounted=190474>

Lerer, M. (2019). The taxation of cryptocurrency: Virtual transactions bring real-life tax implications: Certified public accountant. *The CPA Journal*, 89 (1), 40-43. Retrieved from <https://search-proquest-com.lib1000.dlsu.edu.ph/docview/2185816999?Accounted=190474>

Tkachenko, V., Korystin, O., Voloshchuk, T., Nekrasov, V., & Svyrydiuk, N. (2019). CRYPTOCURRENCY CIRCULATION IN THE GLOBAL AND DOMESTIC FINANCIAL SYSTEMS. *Journal of Legal, Ethical and Regulatory Issues*, 22, 1-6. Retrieved from <https://search-proquest-com.lib1000.dlsu.edu.ph/docview/2330971534?Accounted=190474>

Mazambani, L., & Mutambara, E. (2019). Predicting FinTech innovation adoption in South Africa: The case of cryptocurrency. *African Journal of Economic and Management Studies*, 11 (1), 30-50. Do: <http://dx.doi.org/lib1000.dlsu.edu.ph/10.1108/AJEMS-04-2019-0152>

Trump, B. D., Wells, E., Trump, J., & Linkov, I. (2018). Cryptocurrency: Governance for what was meant to be ungovernable. *Environment Systems & Decisions*, 38 (3), 426-430. Do: <http://>

NAMAZI, M. (2020). Effect of crypto currency on the government backed currency. *Journal of Social and Administrative Sciences*, 7 (1), 62-69. Do:

2021 ASEAN UNIVERSITY NETWORK BUSINESS AND ECONOMICS VIRTUAL CONFERENCE

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[dx.doi.org.lib1000.dlsu.edu.ph/10.1007/s10669-018-9703-8](https://doi.org/10.1007/s10669-018-9703-8)

Volosovych, S., & Baraniuk, Y. (2018). Takes control of cryptocurrency transactions in Ukraine. *Banks and Bank Systems*, 13 (2), 89-106. Do: [http://dx.doi.org.lib1000.dlsu.edu.ph/10.21511/bbs.13\(2\).2018.08](http://dx.doi.org.lib1000.dlsu.edu.ph/10.21511/bbs.13(2).2018.08)

Zulhuda, S., & Sayuti, A. b. (2017).

WHITHER POLICING
CRYPTOCURRENCY IN
MALAYSIA? *. *IIUM Law Journal*,
25 (2), 179-196. Retrieved from
<https://search-proquest-com.lib1000.dlsu.edu.ph/docview/1999113463?Accounted=190474>

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Intergenerational Mobility in Industry 4.0

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Abstract: How are intergenerational transmissions affected by the rapid technological developments wrought by the 4th Industrial Revolution? In the era of automation, traditional models of parental investments need to evolve to account for the displacement effect of technological progress. To analyze the impacts of technology on parental investments, the author proposes an extended model that marries the traditional intergenerational mobility framework with a task-based metric, where skilled-biased technological change is measured through the automation susceptibility of the individual. Through simulations of this novel model, the author demonstrates that technological change leads to adjustments in households that increase the likelihood of the offspring to adapt to future disruptions. The theoretical exercises illustrate that skill-biased technological change increases intergenerational mobility, however the odds of unskilled households remain below the optimum.

These theoretical findings are empirically validated using the Philippine Labor Force Survey data over the period of 2003-2018. To measure an individual's level of skill, the author extends the literature by using a novel task-based metric with natural language processing to estimate automation probability across occupations. The interplay among technological change, parental investments, and automation probability are analyzed using survey design-consistent estimations that account for attenuation and transitory effects. The results appear to show a positive and significant effect of technological change on skills transmission. Moreover, the skills premium from resilience to automation appears to be positive and significant. The paper then discusses relevant policy implications that are applicable in the post-COVID market landscape.

Key Words: Automation, intergenerational mobility, innovation economics, natural language processing

1. INTRODUCTION

In the Philippines, there is political and academic impetus towards enabling social mobility. AmBisyon Natin 2040 was launched in 2016, which represents the vision of the country in the next two decades. Central to this vision is the hope for a middle-class society where there is an equitable distribution of wealth and families can provide adequately for their

offspring - sentiments that are inextricably linked with intergenerational mobility.

However, the country has yet to reap the benefits of these efforts. Martinez et al. (2014) found that although some Philippine households were upwardly mobile due to robust economic development, a greater number fell below the poverty line due to external shocks such as natural disasters or financial crises. In effect, the gains experienced by select individuals during the period of economic growth were

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offset by socioeconomic downgrade experienced by others.

At this juncture, the link between social mobility and technological inequality is more apparent than ever. When placed in an intergenerational context, low upward intergenerational mobility exacerbates pervasive inequalities in human capital investments, which dictate an individual's readiness for technological disruption, which in turn result in lower future social mobility. Moreover, in the context of Industry 4.0, this underscores that the country is ill-equipped to adapt to the rise of automation given its low technological and institutional performance. With technological change driving a wedge between skilled and unskilled workers, thereby increasing the returns to education, it is imperative to examine its impact on intergenerational mobility in order to best equip the nation's youth for the future of work.

The main motivation behind this paper is to examine how technological change can impact a household's decision to invest in their offspring, which determines the skill-outcome of their future generations. Differences in skill-level and occupational composition may also have an impact on the variation in human capital development across a single cohort.

Specifically, the researcher seeks to accomplish the following complementary objectives: (1) To present an extended theoretical framework that combines technological change and intergenerational mobility of skills; (2) To introduce a novel task-based metric of automation susceptibility using natural language processing, which captures occupational readiness in the changing technological landscape in the 4th Industrial Revolution; (3) To empirically analyze the interplay among parental investments, technological change, and automation susceptibility in order to characterize the patterns of intergenerational skills transmission in the Philippines.

There has been comparatively little examination of the impact of intergenerational mobility of skills in terms of technological change. Most studies on mobility have focused on returns to education or parental income in terms of the child's expected income (Becker and Tomes, 1986; Corak, 1999; Solon, 2004; Chetty et al., 2014). Others have examined the occupational prestige that persists across generations (Duncan 1961; Treiman, 1977). The few papers have examined the implications of the changing technological landscape on intergenerational transmissions are purely

theoretical (Galor and Tsiddon, 1997). In the Philippines, notable works have studied gender dynamics in mobility (Quisumbing, 1994; Bevis and Barrett, 2015; Yamauchi and Tiongco, 2013; Okabe, 2016; Abrigo and Francisco-Abrigo, 2019; Dacuycuy and Bayudan-Dacuycuy, 2019), other noted works have examined the rural-urban divide in intergenerational income elasticity (Takahashi, 2013; Dacuycuy, 2019).

2. METHODOLOGY

To analyze the relationship between intergenerational mobility and technological change, the author estimates a series of structural equations, which are survey weighted. The two measures that this paper mainly focuses on are intergenerational mobility of skills and skills premium for automation resilient offspring, which is calculated as the differential income accruing to automation resilience. On the first point, the analysis seeks to examine whether those with higher levels of education are more likely to adapt to technological disruptions and are better equipped to reskill should the need arise (World Bank, 2017). On the second point, the proportion of high-skilled workers in a region is used as a proxy for technological advancement in a region. Moreover, geographic and demographic factors are added at different stages of the regression analysis, with the aim of absorbing the variation from potential confounding variables. The empirical approach used in this paper exploits regional variation in intergenerational mobility – the author treats the regions in the Philippines as economic units, and then proceeds to analyze if areas characterized by higher educational investments from parents to offspring have higher skill mobility or resilience in the face of Industry 4.0.

2.1 Data Sources and Implementation

The Labor Force Survey (LFS) is collected by the NSO every quarter, and it is the main data source for official employment statistics in the Philippines. It has a four-page questionnaire that collects information about the employment status of each household member. Specifically, it asks questions such as labor force status, type of employment and sector of employment. The LFS also collects the basic socio-demographic characteristics such as age, sex and educational qualification of each household member.

The researcher uses the October rounds of the Philippine Labor Force Survey dataset from 2003-

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2018, as these are the years which have information on the daily basic pay (the measure for wage rate) of an individual. The dataset also contains information on the educational attainment, primary occupation, previous occupation, nature of employment, daily basic pay, and other demographic characteristics of the members of a household.

The primary occupation of an individual corresponds to the sub-major groups of the Philippine Standard Occupational Classification (PSOC), a compendium of the occupational groups up to 4 levels of granularity: major group, sub-major groups, minor groups, and unit groups. This study uses the 2012 PSOC as basis, and for the LFS rounds prior, the primary occupations were recoded to conform to the 2012 official sub-major groups.

Another component of the LFS is that it also contains information on the industry in which a worker is employed, based on the 2-digit classification of the Philippine Standard Industrial Classification (PSIC). For the survey years that use the old classification, these were recoded to conform to the latest edition (2009).

As highlighted in previous studies, attenuation bias and transitory effects abound in studies on intergenerational mobility. Thus, to control for such downward biases, this study only considers permanently employed individuals between the ages of 15-65. This follows the findings of Dacuycuy (2019), where estimates on the LFS using the above selection criteria produced more robust estimates. Moreover, to account for the survey design of the LFS, all estimates and tabulations have been survey-weighted based on the final weights and primary sampling units (PSU). The inclusion criteria have been found to generate improved standard errors and more stable estimates.

2.2 Estimating the Task-Based Automation Susceptibility Metric

This research defines skill as an individual's resilience to automation, that is, non-susceptibility to automation. Following Frey and Osborne (2017), the author links a sample of unit group-level classifications (of which there are 436) to a hand-labelled binary indicator. This indicates 1 if the occupation is deemed capable of being computerized, and 0 otherwise. The author constructs a metric to capture this based on the LFS indicator for primary occupation and its associated PSOC description, using a combination of machine learning methods. In this study, the occupation of an agent is classified as skilled or unskilled (susceptible or non-susceptible) depending on the tasks inputs as specified below:

$$L_{s,t} = \sum_{i=1}^n (L_{C,i} + L_{PM,i} + L_{SI,i})$$

where $L_{C,i}$ are tasks/labor inputs that require creativity, $L_{PM,i}$ are the tasks/labor inputs that require perception and manipulation, and $L_{SI,i}$ are the tasks/labor inputs that require social intelligence.

A representative sample from each major group is taken based on how certain the author is of the occupation being automatable - only jobs that are certainly either automatable or not are chosen. This is based on the classifications on the ISIC that were given by the base paper; these were mapped to their PSOC counterparts to hand label a sample of 56 occupations.

Following Frey and Osborne (2017), once a sample of the occupations has been subjectively labelled, a machine learning classification algorithm is developed to classify the rest of the occupations. Since the PSOC is not as comprehensive as the O*NET (which was used in the Frey and Osborne study and includes explicit variables on finger dexterity, manual dexterity, and other occupational features), the author uses natural language processing (NLP) on the descriptions of the unit groups. The NLP library *nltk* on Python is used to extract a feature vector, denoted $x \in R$, from the text input.

2.3 Model Specification

As no longitudinal data on parent-offspring pairs exist, repeated cross-sections at the individual level are used. Earlier intergenerational mobility research depicted parent-offspring paired distributions through simple correlations between the parent's income and the child's income. This form of analysis involving single linear gradients is simple to interpret and less computationally expensive, making it a popular choice for research in the field. However, gradient measures suffer from several key limitations. First, they do not capture between-group heterogeneity well as the measure considers parent-child offspring distributions against the more privileged in their group. Secondly, they are not able to differentiate the changes in mobility and outcomes on opposite ends of the skills or income spectrum.

To remedy this, following Chetty et al. (2014), rank-rank relationships between the parental units and the offspring are generated based on the task-based occupational metric in the community-level distribution. The rank correlation is able to mitigate the effects of generations differences in marginal distributions, as it is based on the copula of the

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bivariate distribution of parents' and children's skills. Rank ordering essentially "normalizes" outliers by drawing them further into the center of the distribution.

This may be written as:

$$p_{j,t}^s \approx Srank_{j,t}^c = \alpha_{c,t} + \beta_t Srank_{j,t}^p + \kappa_t A_s(j,t) + \gamma_t X_{j,t} + \epsilon_{j,t}$$
 where p^s (skilled probability) is proxied by $Srank_{j,t}^c$, percentile rank of the resilience towards automation (i.e. $1 - Auto$) of an individual j . $\alpha_{c,t}$ denotes locational fixed effects. β_t is the level of relative mobility present, which captures the incremental change in the expected skill/automation-susceptibility for children born to parents at the top and bottom of the spectrum ($Srank_{j,t}^p$), which is the parental rank of skill.

The wage gap or skills premium for a community c in year t is calculated with a wage-regression model.

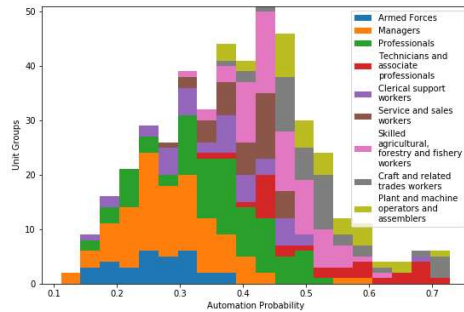
$$\log(w_{j,c,t}) = \alpha_{c,t} + \beta_t Sbin_{j,t} + \gamma_t X_{j,t} + \epsilon_{j,t}$$

for each j worker living in the location c . $\log(w_{j,c,t})$ is the log of their hourly pay. $Sbin_{j,t}$ is an indicator for whether an individual j is highly resilient to automation or otherwise. $X_{j,t}$ is a vector of control variables that includes socio-economic factors such as age, age squared, as well as parental investments and education. Hence, the coefficient β_t denotes the skill-premium, or the wage gap explained by differences in the Industry 4.0-readiness of workers.

3. RESULTS AND DISCUSSION

Occupations under the machine operators, agriculture, service and sales, and clerical work appear to have higher probabilities of automation. On the opposite side of the spectrum, managers, professionals, and those in the armed forces tend to be less susceptible to computerization (Fig. 1). These somewhat conform to conceptual intuition, as these major groups are, on a high level, those that require significant levels of perception and manipulation, creativity, and social intelligence.

Figure 1. Distribution of Automation Susceptibility Over Major Occupational Group Classifications



Visual examination reveals regional differences. Unsurprisingly, NCR seems to have the lowest average probability of computerization, followed by Region III, Region IV-A, and Region VI (Western Visayas). Region II, again, underperforms, along with CAR (Cordillera Administrative Region) (Fig. 2).

Figure 2. Susceptibility to Automation Heatmap

Year	I	II	III	IV-A	IV-B	V	VI	VII	VIII	IX	X	XI	XII	NCR	CAR	ARMM	BARMM	
2003	0.49	0.50	0.48	0.46	0.48	0.48	0.48	0.48	0.48	0.49	0.49	0.48	0.49	0.44	0.49	0.49	0.48	
2004	0.49	0.50	0.48	0.47	0.48	0.48	0.47	0.47	0.47	0.49	0.49	0.48	0.49	0.45	0.50	0.47	0.48	
2005	0.49	0.51	0.48	0.47	0.49	0.48	0.48	0.48	0.48	0.49	0.48	0.48	0.48	0.49	0.45	0.49	0.47	0.48
2006	0.49	0.50	0.48	0.46	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.49	0.48	0.49	0.45	0.49	0.47	0.48
2007	0.49	0.50	0.48	0.46	0.48	0.48	0.48	0.48	0.48	0.48	0.49	0.48	0.48	0.49	0.45	0.49	0.47	0.48
2008	0.48	0.50	0.46	0.46	0.48	0.48	0.48	0.48	0.47	0.49	0.48	0.48	0.48	0.49	0.44	0.49	0.47	0.48
2009	0.48	0.49	0.46	0.46	0.47	0.47	0.47	0.47	0.47	0.48	0.49	0.48	0.48	0.45	0.49	0.48	0.48	0.48
2010	0.48	0.49	0.47	0.46	0.48	0.47	0.47	0.47	0.47	0.49	0.49	0.48	0.48	0.49	0.45	0.49	0.49	0.48
2011	0.48	0.50	0.47	0.46	0.48	0.48	0.48	0.47	0.47	0.49	0.48	0.48	0.48	0.45	0.49	0.49	0.48	0.48
2012	0.48	0.50	0.48	0.46	0.47	0.47	0.47	0.47	0.46	0.48	0.48	0.47	0.48	0.44	0.48	0.48	0.47	0.47
2013	0.47	0.49	0.46	0.46	0.47	0.47	0.46	0.47	0.47	0.48	0.47	0.47	0.47	0.47	0.44	0.48	0.48	0.46
2014	0.47	0.49	0.46	0.46	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.45	0.48	0.48	0.46
2015	0.47	0.49	0.46	0.46	0.46	0.47	0.47	0.47	0.46	0.47	0.47	0.47	0.47	0.47	0.45	0.48	0.47	0.46
2016	0.48	0.49	0.46	0.47	0.47	0.48	0.47	0.48	0.47	0.48	0.48	0.48	0.48	0.48	0.46	0.49	0.47	0.47
2017	0.48	0.49	0.47	0.47	0.47	0.47	0.47	0.48	0.47	0.47	0.47	0.47	0.47	0.47	0.46	0.48	0.46	0.46
2018	0.48	0.48	0.46	0.47	0.47	0.47	0.48	0.48	0.46	0.47	0.47	0.48	0.48	0.46	0.48	0.46	0.47	0.47

Upward movements are depicted by the shares in the lower triangular entries (Table 1). Intergenerational persistence of skill level appears to be strong for mother-offspring pairs, with 80% of highly resilient mothers also raising highly resilient sons. As for mother-daughter pairs, around 43% of daughters remain in the same quartile of skill as their mothers, particularly for the higher skilled quartiles. Likewise, father-son pairs also have a considerable degree of persistence, with 70% of highly resilient fathers also producing highly resilient sons. Intergenerational transmissions appear weakest for father-daughter pairs, with 43% of highly resilient father raising only moderately resilient daughters.

Table 1. Intergenerational Transition Probabilities of Skill Level (Survey-Weighted), Shares

a. Father - Son					b. Mother - Son				
Skill Categories	Highly Resilient	Moderately Resilient	Mildly Resilient	Not Resilient	Skill Categories	Highly Resilient	Moderately Resilient	Mildly Resilient	Not Resilient
Highly Resilient	0.70	0.17	0.11	0.03	Highly Resilient	0.84	0.05	0.09	0.02
Moderately Resilient	0.41	0.4	0.14	0.06	Moderately Resilient	0.46	0.31	0.17	0.05
Mildly Resilient	0.73	0.08	0.17	0.03	Mildly Resilient	0.6	0.13	0.23	0.04
Not Resilient	0.36	0.28	0.15	0.22	Not Resilient	0.41	0.28	0.16	0.14

c. Father - Daughter					d. Mother - Daughter				
Skill Categories	Highly Resilient	Moderately Resilient	Mildly Resilient	Not Resilient	Skill Categories	Highly Resilient	Moderately Resilient	Mildly Resilient	Not Resilient
Highly Resilient	0.32	0.43	0.13	0.12	Highly Resilient	0.69	0.18	0.06	0.07
Moderately Resilient	0.23	0.48	0.15	0.14	Moderately Resilient	0.2	0.52	0.13	0.15
Mildly Resilient	0.49	0.27	0.12	0.12	Mildly Resilient	0.38	0.24	0.23	0.14
Not Resilient	0.25	0.33	0.1	0.32	Not Resilient	0.19	0.45	0.11	0.26

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On skills persistence, there is shown to be a positive and significant effect of parental skill rank on the child's skill rank, which corroborates the earlier transition matrices (Table 2). This effect appears to be stronger for sons, which have highly significant and positive coefficient, while the coefficients for daughters are smaller in magnitude. This also aligns with earlier findings that father-daughter transmissions are lower than father-son transmissions. Both sons and daughters' skill is generally significantly positively associated with an increase in technology (Table 2), the coefficients of which remain somewhat stable even after adding controls.

Table 2. Intergenerational Skills Transmission

Year	a. Father - Son			b. Father-Daughter		
	(1) Base	(2) Technology Measure	(3) Controls	(1) Base	(2) Technology Measure	(3) Controls
2003	0.2240*** (0.0201)	0.2214*** (0.0201)	0.1556*** (0.0194)	0.1442*** (0.0279)	0.1259* (0.0297)	0.1175** (0.0284)
2004	0.2459*** (0.0201)	0.2395*** (0.0196)	0.1519*** (0.0187)	0.1211*** (0.0326)	0.1182 (0.0325)	0.1019* (0.0316)
2005	0.1674*** (0.0205)	0.1671*** (0.0205)	0.1032*** (0.0197)	0.1318*** (0.0297)	0.1067** (0.0298)	0.10735*** (0.0292)
2006	0.1763*** (0.0180)	0.1637*** (0.0182)	0.1121*** (0.0191)	0.1118*** (0.0312)	0.1057** (0.0298)	0.1035*** (0.0292)
2007	0.1842*** (0.0191)	0.1831*** (0.0191)	0.1164*** (0.0180)	0.0897*** (0.0312)	0.1060* (0.0325)	0.1028* (0.0316)
2008	0.1804*** (0.0198)	0.1774*** (0.0199)	0.1092*** (0.0185)	0.1445*** (0.0283)	0.11565*** (0.0276)	0.1044*** (0.0276)
2009	0.1811*** (0.0190)	0.1775*** (0.0189)	0.1108*** (0.0179)	0.1532*** (0.0273)	0.1214*** (0.0277)	0.1151*** (0.0269)
2010	0.1773*** (0.0183)	0.1747*** (0.0182)	0.1172*** (0.0182)	0.1141*** (0.0255)	0.1091* (0.0256)	0.1065* (0.0249)
2011	0.1620*** (0.0180)	0.1598*** (0.0181)	0.0676*** (0.0165)	0.0821*** (0.0248)	0.0720* (0.0239)	0.0616* (0.0239)
2012	0.2010*** (0.0206)	0.1928*** (0.0206)	0.1232*** (0.0200)	0.1105*** (0.0285)	0.08183* (0.0280)	0.09126* (0.0277)
2013	0.2102*** (0.0180)	0.2101*** (0.0179)	0.1402*** (0.0172)	0.1534*** (0.0266)	0.1206*** (0.0265)	0.1397*** (0.0252)
2014	0.1783*** (0.0196)	0.1524*** (0.0306)	0.09628*** (0.0182)	0.0766*** (0.0268)	0.0705* (0.0268)	0.06801* (0.0263)
2015	0.1843*** (0.0190)	0.1784*** (0.0196)	0.1028*** (0.0206)	0.0867*** (0.0312)	0.0795* (0.0268)	0.0770* (0.0263)
2016	0.1790*** (0.0266)	0.1789*** (0.0265)	0.1223*** (0.0253)	0.1671*** (0.0329)	0.1072*** (0.0341)	0.1162*** (0.0325)
2017	0.1679*** (0.0261)	0.1549*** (0.0252)	0.0998*** (0.0244)	0.1408*** (0.0380)	0.1383*** (0.0358)	0.07676** (0.0356)
2018	0.1897*** (0.0309)	0.1823*** (0.0296)	0.1106*** (0.0273)	0.1540*** (0.0327)	0.12083*** (0.0324)	0.11487*** (0.0325)
Region FE	YES	YES	YES	YES	YES	YES

4. CONCLUSIONS

To model the effects of technological change, this study extends the literature in several ways. First, it presents a theoretical framework that models the impact of parental investments on offspring's skill in the context of skill-biased technological change. Next, the study proposes a novel non-parametric natural language processing-based metric to measure an individual's skill, which is defined as resilience to automation. Finally, the interplay of automation susceptibility, technological change, and parental endowments is empirically examined through Philippine survey data over the time period 2003-2018. In any study on intergenerational mobility, issues on attenuation, life cycle bias, and heterogeneity are prevalent (Jantti et al., 2015;

Dacuycuy, 2019). This study ensures proper sample selection and survey design consistency through restrictions on the parents and offspring's age and nature of employment. Moreover, robust standard errors are reported.

This study has illustrated the high automation susceptibility across the Philippines, with several regions being more at-risk. characterizes the importance of parental investments in preparing offspring for the digital workplace. Moreover, skill-based intergenerational persistence is found to be stronger for father-son pairs over father-daughter pairs. Finally, there is a large and significant skill premium associated with an individual's resilience to automation. Gender dynamics play a role in this wage gap, as daughters display lower levels than sons.

Policy Recommendations. Closing the digital divide is more imperative than ever, given the acceleration of digital platforms brought about by the global COVID-19 pandemic. COVID-19 effects are further bringing to light the effects of job polarization and widening inequality among workers (Park & Inocencio, 2020). Movement restrictions, social distancing measures, and the like are accelerating the digital transformation of the Philippine workplace. Thus, based on the findings of this paper, several policy recommendations are presented. Promoting greater transparency and open access to data, knowledge, and tools among collaborators in the region will generate a large public good that could raise our understanding of digital platforms. One key aspect of this is creating a sophisticated and linked national longitudinal dataset to better understand the long-run dynamics of intergenerational mobility. Greater regional partnerships and deepening existing networks and promoting greater opportunity for collaboration and joint programming could also strengthen the regional response to challenges arising from technological disruption.

5. REFERENCES

- Abrigo, M. R., & Francisco-Abrigo, K. (2019). Counting women's work in the Philippines (No. 2019-02). PIDS Discussion Paper Series.
- Aldaba, R. M. (2013). Impact of Trade Liberalization on Wage Skill Premium in Philippine Manufacturing (No. 2013-25). PIDS Discussion Paper Series.

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- Autor, D.H. (2015). Why are there still so many jobs? The history and future of workplace automation. *Journal of Economic Perspectives* 29(3): 3–30.
- Becker, G. S. (1962). Investment in human capital: A theoretical analysis. *Journal of political economy*, 70(5, Part 2), 9-49.
- Becker, G. S., Kominers, S. D., Murphy, K. M., & Spenkuch, J. L. (2018). A theory of intergenerational mobility. *Journal of Political Economy*, 126(S1), S7-S25.
- Bevis, L. E., & Barrett, C. B. (2015). Decomposing intergenerational income elasticity: The gender-differentiated contribution of capital transmission in rural Philippines. *World Development*, 74, 233-252.
- Chetty, R., Hendren, N., Kline, P., Saez, E., & Turner, N. (2014). Is the United States still a land of opportunity? Recent trends in intergenerational mobility. *American Economic Review*, 104(5), 141-47.
- Conchada, M. I. P., Sy, D. H. A., Tiongco, M. M., & Paloyo, A. R. (2020). Recent trends in the gender gap in the labor market in the Philippines. *Philippine Review of Economics*, 56(1&2), 173-186.
- Dacuycuy, L. B. (2019). Social mobility in the Philippine labor market. *Philippine Review of Economics*, 55(1&2), 1-40.
- Dacuycuy, L. B., & Bayudan-Dacuycuy, C. (2019). Understanding the educational mobility of men and women and the schooling progression of boys and girls in the Philippines: A regional perspective (No. 2019-03). PIDS Discussion Paper Series.
- Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation?. *Technological forecasting and social change*, 114, 254-280.
- Guner, N. (2015). Gary Becker's Legacy on Intergenerational Mobility. *Journal of Demographic Economics*, 81(1), 33-43.
- International Monetary Fund. 2018. *World Economic Outlook: Cyclical Upswing, Structural Change*. Washington, DC, April.
- Karabarbounis, L., & Neiman, B. (2014). The global decline of the labor share. *The Quarterly journal of economics*, 129(1), 61-103.
- Lambert, J., Mulheirn, I., Thomas, R., & Skelton, B. (2018). *Technology and the Future of ASEAN Jobs*. Retrieved from <https://www.oxfordeconomics.com/recent-releases/dd577680-7297-4677-aa8f-450da197e132>
- Philippine Statistics Authority. (2012). *Philippine Standard Occupational Classification*. Retrieved from <https://psa.gov.ph/classification/psic>
- Quisumbing, A. R. (1994). Intergenerational transfers in Philippine rice villages: Gender differences in traditional inheritance customs. *Journal of Development Economics*, 43(2), 167-195.
- Solon, G. (1992). Intergenerational income mobility in the United States. *The American Economic Review*, 393-408.
- Takahashi, K. (2013). Pro-poor growth or poverty trap?: estimating intergenerational income mobility in rural Philippines.
- World Economic Forum. (2020). *The Global Social Mobility Report 2020*. Retrieved from http://www3.weforum.org/docs/Global_Social_Mobility_Report.pdf
- Yamauchi, F., & Tiongco, M. (2013). Why women are progressive in education? Gender disparities in human capital, labor markets, and family

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arrangement in the Philippines. *Economics of Education Review*, 32, 196-206.

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Parallel Session G: COVID-19 and the Economy A

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Developing A Vulnerability Composite Index To Assess The Financial System: An Indonesia Experience

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Abstract: The ongoing Covid-19 Pandemic has been a challenging issue that influences the economy, particularly the financial system. This paper attempts to assess the financial system by developing a vulnerability composite index in the context of Indonesia. A six-year monthly series dataset from 2014 to 2020 and the Principal Component Analysis method are used to construct the composite index. The index can be used as an early warning indicator to capture systemic risks of the financial system. The indicator also enables authorities to monitor and mitigate the systemic risks, particularly for the financial sectors (banks) as well as the real sectors (corporations) and external sectors (rest of the world). This research assesses the possibilities of vulnerability indicators in measuring the impact of a pandemic on the financial system. It also contributes to developing the vulnerability composite indicator to complement the financial system stability index issued by the central bank. The result shows that the financial system was more vulnerable in the Pandemic Period (2020) than the Normal Period (2014 to 2019). The index indicates that the financial system vulnerability was low during the Normal Period but jumped out above the threshold due to the Pandemic. To conclude, the Covid-19 outbreak has affected Indonesia's financial system, particularly in the early Pandemic. However, it further goes back stable in the short term after some policy intervention is undertaken.

Key Words: financial system; principle component analysis; systemic risks; vulnerability composite index

1. INTRODUCTION

The Global Financial Crisis (2008/2009) has raised awareness on the importance of maintaining Financial System Stability (FSS). Additionally, it is further highlighted by the Covid-19 Pandemic that has been impacting the global economic downturn, including Indonesia's FSS, as shown by the IMF data (2020) in Figure 1. The Covid-19 outbreak is thought to have affected the financial system, such as a massive capital flow and export-import performance. Furthermore, FSS nowadays are more interconnected, raising potential systemic risks. However, the

composite indicator as an early warning system to capture the systemic risk has not been fully considered.

Meanwhile, the Financial System Stability Index (FSSI) that the central bank has assessed is assumed to be insufficient to capture the vulnerability. The index reflects a financial system resiliency from risk exposure. There are two sub-index in the FSSI: the Financial Institution Stability Index and Financial Market Stability Index. In general, the index limits the focus on the banking sector risks.

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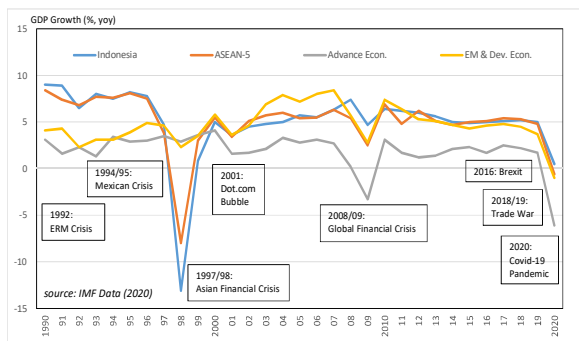


Fig. 1. The “Black Swan” Crisis Events

The FSS is a financial system condition that is capable of efficiently carrying out its role as an intermediary institution and has resistance to various shocks, including external shock (Anadu et al., 2020; Isukul & Chizea, 2020; Samsi et al., 2018; Vo et al., 2019). Meanwhile, the financial vulnerability is a status of financial instability or a situation to the exposure of financial risk and shock (Lee & Sabri, 2017). Past studies on FSS showed that most composite indices are still dominated by banks and macro variables (Dahalan et al., 2016; Johnston et al., 2000; Rao et al., 2019). For example, the banking stability index in EU Countries (Kocisova & Stavárek, 2018) and the composite indicator as financial stress index for Vietnam (Duc & Ai, 2018).

This research attempts to assess the possibilities of vulnerability indicators in measuring the impact of a pandemic on the financial system. It also contributes to developing a vulnerability composite indicator to complement the financial system stability index assessed by the central bank.

2. METHODOLOGY

2.1 Theoretical Framework

Based on the key findings from the literature review, we propose our positioning framework that combines vulnerability in every single institutional indicator into a vulnerability composite indicator. Figure 2 shows the inter-linkages between two blocks of institutional sectors (economic agents) in the financial system, namely financial institutions and non-financial institutions. Those two institutions

possess some risks, such as market risk, capital risk, liquidity risk, financial risk, and currency risk, which can inflict vulnerabilities. The rest of the world then interacts as external sectors with shock possibilities to the domestic financial system.

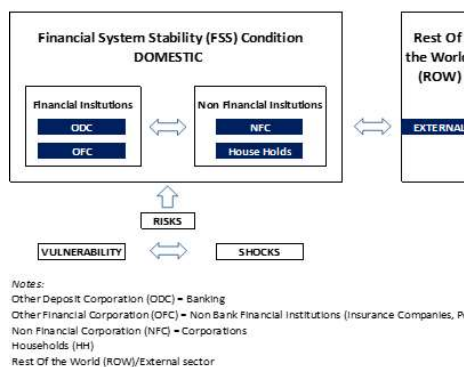


Fig. 2. Macroeconomic Linkages

The macroeconomic interlinkages exhibit the existence of three institutional sectors influencing the vulnerability of the financial system. These three institutions become the focus of the research. In the Indonesian context, the biggest key player of financial institutions that play crucial roles in the financial system is banking, while non-financial institutions are corporations. Data from Bank Indonesia reveals that, at the end of 2020, they cover three-quarters of total financial assets, i.e., 44% banking and 31% corporations. Moreover, they become the primary source of money flows to other institutions in the domestic economy. According to Bank Indonesia, in 2020, the bank has delivered a credit amount of IDR 5.582 trillion, around 36% of GDP (Indonesia Financial Statistics, February 2021). At the same time, the external sector plays an ultimate role as well in the domestic economy. It is indicated through the Indonesia international investment position on December 2020 that achieves US\$281.2 billion or around 27% of GDP.

The possible variables of financial system vulnerability can be grouped into three institutional sectors, such as banking as financial institutions, corporations as non-financial institutions, and external sectors (see Figure 3).

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Financial Institutions BANKING	Non Financial Institutions CORPORATIONS
Capital Adequacy Ratio (CAR) Liquid Assets to Short-Term Liabilities Liquidity assets to total assets Loan to Deposit ratio (LDR) Non Performing Loans (NPL) Return on Asset (ROA) Return on Equity (ROE) Credit to GDP	Stock market volatility Corporate bond spread Government bond spread 3-month LIBOR (JISDOR)/T-Bill (TED) spread A country-U.S. interest rate differential
	EXTERNAL SECTOR
	Export growth Import growth Exchange rate volatility GDP growth

Fig. 3. The Clustering of Vulnerability Variables
The relationship between those variables and risk measurement is mapped in Table 1.

Table 1
Risks Measurement and Potential Variables

Risks Measurement	Potential Variables	
capital risk	X1	Capital Adequacy Ratio (CAR)
liquidity risk	X2	Liquid Assets to Short-Term Liabilities
credit risk	X3	Loan to Deposit ratio (LDR)
credit risk	X4	Non Performing Loans (NPL)
financial risk	X5	Return on Asset (ROA)
financial risk	X6	Return on Equity (ROE)
credit risk	X7	Credit to GDP
market risk	X8	Stock market volatility
market risk	X9	Corporate bond spread
market risk	X10	Government bond spread
market risk	X11	3-month LIBOR (JISDOR)/T-Bill (TED) spread
market risk	X12	Indonesia-U.S. interest rate differential
currency risk	X13	Export growth
currency risk	X14	Import growth
currency risk	X15	Exchange rate volatility
currency risk	X16	GDP growth

2.2 Data and Method

Secondary data is applied in the research from official resources, such as the Central Bank of Indonesia (BI), Financial Service Authority (OJK), Statistics Indonesia (BPS), Ministry of Finance, and Indonesia Stock Market (BEI). A six-year monthly-series data set of the 16 possible vulnerability variables are collected from 2014 (Dec) to 2020 (June) with 67 observations for each variable.

The data frequency varies, from high frequency, daily data (financial market data), to medium frequency, monthly data (banking reports and financial statistics), and quarterly data (macroeconomic statistics), as shown in Table 2. Data transformation is then used to change the different frequencies into monthly data series.

Table 2

Data Frequency and Sources

Variables potentially included in vulnerability index	Frequency	Sources
Banking:		
Capital Adequacy Ratio (CAR)	monthly	OJK
Liquid Assets to Short-Term Liabilities	monthly	OJK
Loan to Deposit ratio (LDR)	monthly	OJK
Non Performing Loans (NPL)	monthly	OJK
Return on Asset (ROA)	monthly	OJK
Return on Equity (ROE)	monthly	OJK
Credit to GDP	quarterly	OJK & BPS
Corporation - Financial Market:		
Stock market volatility	daily	BEI
Corporate bond spread	daily	BEI
Government bond spread	daily	MOF
3-month LIBOR (JISDOR)/T-Bill (TED) spread	daily	BI
A country-U.S. interest rate differential	monthly	BI
External - Macroeconomic:		
Export growth	monthly	BPS
Import growth	monthly	BPS
Exchange rate volatility	daily	BI
GDP growth	quarterly	BPS

The Principal Component Analysis (PCA) method is used to construct the composite index. The central idea of PCA is to reduce the dimensionality of a data set in which there are a large number of interrelated variables while retaining as much as possible the variation present in the data set (Jolliffe, 2002). The PCA is used to analyze the structure of the interrelationships among a large number of variables to determine a set of common underlying dimensions (factors/principal components). The factors are the most responsible for the co-movement of the variables.

The step-by-step PCA procedures, such as building a correlation matrix to test the adequacy of sampling with the Kaiser Meyer Olkin (KMO) method, are as follows:

$$\frac{\sum_i \sum_{i \neq k} r_{ik}^2}{\sum_i \sum_{i \neq k} r_{ik}^2 + \sum_i \sum_{i \neq k} a_{ik}^2}$$

with

r_{ik}^2 is simple quadratic of correlation matrix

a_{ik}^2 is partial quadratic of correlation matrix

The KMO calculation results 0,64 overall which is bigger than 0,5 as a rule of thumb so the data is adequate to be processed by the PCA.

Such descriptive data is shown in Table 3.

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Table 3
Descriptive Data

Variable	Obs	Mean	Std. Dev.	Min	Max
car	67	22.46299	.9783335	19.57	23.93
lastl	67	16.83403	1.142087	14.64	18.82
ldr	67	91.05672	2.278096	87.58	96.19
npl	67	2.779254	.2396039	2.16	3.22
roa	67	2.440597	.1395651	1.94	2.85
roe	67	17.10687	1.125968	13.76	21.37
ctgdp	67	34.48284	.6251637	33.39	35.76
smv	67	.0065672	3.93023	-16.76	6.78
cbs	67	11.75224	.8063739	9.95	13.84
gbs	67	5.346209	.9139735	2.867	7.558
teds	67	5.664328	1.387645	3.61	8.63
ird	67	4.586418	1.617857	2.56	7.69
exg	67	-.9589552	14.57671	-31.15	42.28
img	67	-.6108955	18.05545	-39.57	49.86
erv	67	2.559851	2.647193	.28	17.22
gdp	67	4.660597	2.446355	-5.32	12.35

Data analysis using the PCA method is used to create linear combinations between correlated independent variables and turn them into a principal component (PC) where PC variables are not correlated. This aims to reduce the dimensions of the data set.

Table 4
Correlation Matrix

	car	lastl	ldr	npl	roa	roe	ctgdp	smv	cbs	gbs	teds	ird
car	1.0000											
lastl	-0.1719	1.0000										
ldr	0.4629	-0.8566	1.0000									
npl	0.4144	0.4362	-0.3037	1.0000								
roa	-0.0012	-0.2218	0.1959	-0.5068	1.0000							
roe	-0.5678	0.0728	-0.2449	-0.5182	0.7887	1.0000						
ctgdp	0.0629	-0.5331	0.5996	-0.2716	-0.1531	-0.2294	1.0000					
smv	0.2285	0.1019	-0.0607	0.0636	-0.1075	-0.2110	-0.1118	1.0000				
cbs	0.7601	-0.3183	0.6120	0.0662	0.1396	-0.3899	0.1872	0.0599	1.0000			
gbs	-0.2997	-0.2090	-0.0002	-0.0654	-0.2843	-0.0525	0.4435	-0.2572	-0.3568	1.0000		
teds	-0.6462	0.2422	-0.4674	0.0002	-0.1740	0.2998	-0.2038	0.1261	-0.7885	0.1517	1.0000	
ird	-0.8551	0.2003	-0.5077	-0.2854	-0.0504	0.4759	-0.1782	-0.0182	-0.9137	0.2851	0.8518	1.0000
exg	0.4915	0.2601	-0.1138	0.4569	0.0950	-0.1229	-0.2816	0.0216	0.4591	-0.3457	-0.3224	-0.5610
img	0.5139	0.1485	0.0169	0.2858	0.1850	-0.0949	-0.2674	0.1360	0.6207	-0.4653	-0.4038	-0.6275
erv	-0.3278	-0.1810	0.0320	-0.0938	-0.0469	0.1435	0.3783	-0.3006	-0.2194	0.4652	0.0988	0.2158
gdp	-0.0425	0.0872	-0.0785	-0.2850	0.5140	0.4770	-0.4147	-0.0083	-0.0540	-0.3178	0.2224	0.1500
	exg	img	erv	gdp								
exg	1.0000											
img	0.8664	1.0000										
erv	-0.2604	-0.2603	1.0000									
gdp	0.1335	0.2054	-0.3187	1.0000								

Table 4 shows that there is a high correlation between variables, so it can be concluded that this data set requires a little principal components to be able to capture the variance of data distribution.

Table 5

Eigenvalues

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	5.11836	1.60372	0.3199	0.3199
Comp2	3.51463	.763701	0.2197	0.5396
Comp3	2.75093	1.40309	0.1719	0.7115
Comp4	1.34784	.586111	0.0842	0.7957
Comp5	.761728	.0576827	0.0476	0.8433
Comp6	.704045	.229164	0.0440	0.8873
Comp7	.474881	.0794042	0.0297	0.9170
Comp8	.395476	.0509564	0.0247	0.9417
Comp9	.34452	.13118	0.0215	0.9633
Comp10	.21334	.072578	0.0133	0.9766
Comp11	.140762	.0572455	0.0088	0.9854
Comp12	.0835162	.0145652	0.0052	0.9906
Comp13	.068951	.0178622	0.0043	0.9949
Comp14	.0510888	.0281023	0.0032	0.9981
Comp15	.0229865	.0160397	0.0014	0.9996
Comp16	.00694679	.	0.0004	1.0000

Table 5 shows the eigenvalue of Principal Component (PC) 1, PC 2, PC 3, and PC 4 as > 1. These high eigenvalue values indicate that PC 1 to PC 4 can capture the data set variance and explain 79.6% of the data distribution. Hence, the four principal components are selected from the highest cumulative eigenvalues above 1, see Figure 4.

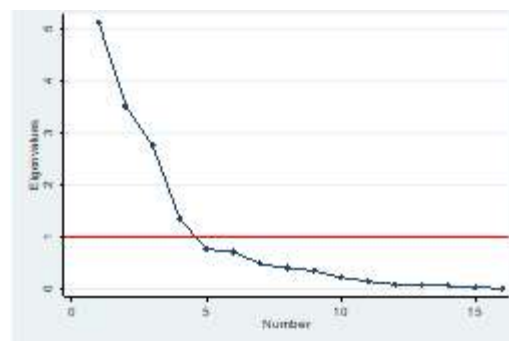


Fig. 4. Scree Plot of Eigenvalues after PCA

In the eigenvectors table, the variance value in the Unexplained column did not increase significantly (only under 37%) even though it only employed four PCs. This indicates that the number of PCs used is sufficient to be utilized in finding the PCA index.

Table 6 shows the loading (coefficient of the linear combination of variables) that makes up the PC. The results of loading > 0.3 indicate that these variables affect PC. The positive and negative signs on

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loadings signify that the variable has a positive and negative correlation

Table 6
Eigenvectors

Variable	Comp1	Comp2	Comp3	Comp4	Unexplained
car	-0.3485	-0.2405	-0.0332	-0.1160	.154
lastl	-0.0697	0.3666	-0.3217	0.1388	.1922
ldr	-0.0533	-0.4215	0.2953	-0.1597	.08662
npl	-0.1683	0.0032	-0.4663	0.1743	.2158
roa	-0.0626	0.1456	0.5257	0.1086	.1294
roe	0.1345	0.3152	0.3893	0.2085	.08255
ctgdp	0.1304	-0.4134	0.0821	0.0274	.2927
smv	-0.1016	0.0557	-0.1143	-0.6395	.3491
cbs	0.3776	-0.1695	-0.1045	0.0124	.1391
gbs	0.3544	-0.1671	-0.0983	0.1318	.2089
teds	0.2738	0.2786	-0.1372	-0.1807	.2479
ird	0.3625	0.2774	-0.0383	-0.1107	.03645
exg	-0.3496	0.0816	-0.0658	0.3042	.2143
img	-0.3744	0.0635	0.0329	0.1982	.2126
erv	0.2240	-0.1392	0.0038	0.4784	.3666
gdpj	-0.0782	0.3070	0.3110	-0.1527	.3401

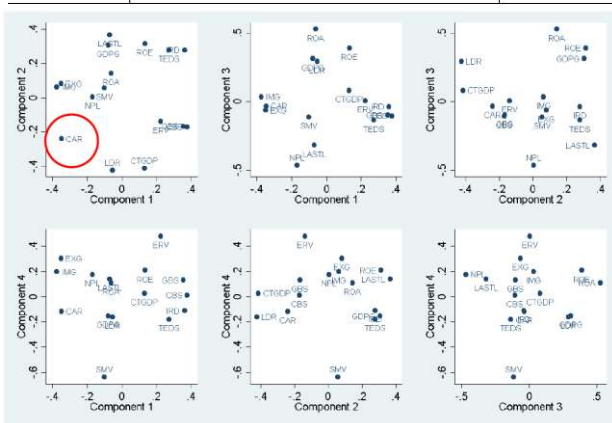


Fig. 5. Variables Loading to Each Components

The graph above shows, in general, the effect of the sixteen variables on PC 1 to PC 4. For example, the CAR variable with a loadings value of -0.3485 in the eigenvector table can be seen in the graph above as a significant influence in forming PC 1, likewise with other variables. The PCA index can then be calculated by the formula,

$$PCA \text{ index } t = \sum_{i=1}^k (PC \text{ it } \times \text{Weight of PC } i)$$

where, PC = Principal Component Score; Weight of PC = Principal Component Variance; and t = time (month); i = number of principal component; k = number of principal component which is total loading factors > 1.

3. RESULTS AND DISCUSSION

The vulnerability composite index (VCI) is the result, with Figure 6 shows that around 2014-2015, it is above the threshold ($\mu+1\sigma$). It might be related to the taper tantrum period when capital outflows from emerging markets, including Indonesia, went back to the US due to The Fed policy. Then, as trade war influences the domestic financial system vulnerability, VCI was in a lower threshold in 2018-2019.

The VCI indicates that the financial system vulnerability is lower during the Normal Period, with the mean and one standard deviation index area. However, due to the Pandemic in 2020, the index surged above the upper threshold during the last first quarter but quickly returned stable during the second quarter. The result shows that the financial system is more vulnerable during the pandemic period (2020) than the Normal Period (2014 to 2019), proving that the Covid-19 outbreak has impacted the financial system.

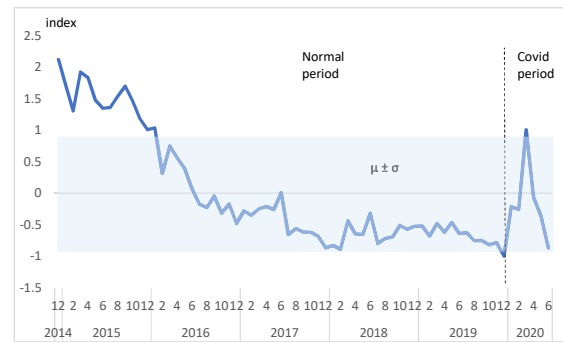


Fig. 6. The Vulnerability Composite Index

Figure 7 shows the results of the data clusters in different years. For example, in the 2020 m3 (March) observation, the time variable significantly impacts PC 4 where the third month is loaded highly on PC 4 (where PC 4 is formed from the influence of market volatility variables). This is consistent with the condition of the Indonesian economy in March, which showed great volatility in the exchange rate and capital market at the beginning of the Covid-19 Pandemic.

Compared to the FSSI, the Central Bank of Indonesia stated that FSS was in a normal condition amid a gradually improving economy. The policy

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synergy among the authorities to overcome the impact of Covid-19 was able to encourage gradual economic improvement by maintaining stability.

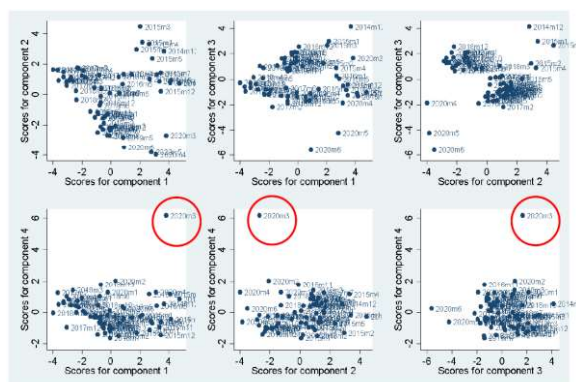


Fig. 7. Observation Loading to Each Components

Authorities have released several policies to cope with the pandemic impact on the economy since the early outbreak. Initially, the government responded to the impact of Covid-19 by issuing a Government Regulation in Substitute of Law (Perppu) No.1 of 2020 concerning Budget Fiscal Policy and Financial System Stability for Handling the Pandemic Corona Virus Disease 2019 (Covid-19) and in the Context of Facing Threats Endangering the National Economy and Financial System Stability. The Perppu was later passed into Law Number 2 of 2020 on March 31, 2020.

The main idea of the Law is to enlarge the fiscal deficit and the central bank financing through government obligation buyings in the primary market. Those are to finance the pandemic costs, such as social safety net, health safety net, and support funds to micro and small, medium enterprises. To support economic recovery, the government has allocated a budget of IDR 695.23 trillion (approximately US\$50 billion) for spending on handling Covid-19 and the national economic recovery program (PEN) throughout 2020.

4. CONCLUSIONS

To conclude, the Covid-19 outbreak has affected Indonesia's financial system, particularly in the early Pandemic. It is proved by the study finding that the financial system is more vulnerable during the pandemic period (2020) than the Normal Period

(2014 to 2019). Despite the shock, it further returned to stability in the short term after some policy intervention was undertaken. The vulnerability composite index can complement the FSSI in terms of assessing the systemic risks other than the banking risks.

However, besides the sixteen variables, other potential variables inside the vulnerability composite index are still open for discussion. Apart from the PCA method, other index methods might be more suitable to construct a composite index. Those other variables and methods could be considered for future research.

5. REFERENCES

- Anadu, K., Kruttli, M., McCabe, P., & Osambela, E. (2020). The Shift from Active to Passive Investing: Risks to Financial Stability?. *Financial Analysts Journal*, 76(4), 23-39.
- Dahalan, J., Abdullah, H. B., & Umar, M. (2016). Measuring Financial Stress Index for Malaysian Economy. *International Journal of Economics and Financial Issues*, 6(3), 942-947.
- Duc, N. C., & Ai, H. T. (2018). Constructing a financial stress index for Vietnam: an application of autoregressive conditional heteroskedastic models. *In International Econometric Conference of Vietnam* (pp. 562-583). Springer, Cham.
- Isukul, A. C., & Chizea, J. J. (2020). An Analytical Assessment of Financial Crisis in Developing Countries, Its Effects, Consequences and Implications. *Asian Journal of Agricultural Extension, Economics & Sociology*, 155-168.
- Johnston, R. B., Chai, J., & Schumacher, L. B. (2000). Assessing Financial System Vulnerabilities.
- Kočišová, K., & Stavárek, D. (2018). The evaluation of banking stability in the European Union countries. *International Journal of Monetary Economics and Finance*, 11(1), 36-55.

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Lee, M.P., & Sabri, M. F.(2017). Review of Financial Vulnerability Studies. *Archives of Business Research*, 5(2), 12-133.

Rao Subramaniam, V. P., Ab-Rahim, R., & Selvarajan, S. K. (2019). Financial Development, Efficiency, and Competition of ASEAN Banking Market. *Asia-Pacific Social Science Review*, 19(3).

Samsi, S. M., Yusof, Z., & Cheong, K. C. (2018). The effect of global financial crisis on ASEAN growth: Evidence from stock market analysis. *DLSU Business & Economics Review*, 28(1), 1-33.

Vo, D. H., Nguyen, V. M., Quang-Ton Le, P. H. A. T., & Pham, T. N. (2019). The determinants of financial instability in emerging countries. *Annals of Financial Economics*, 14(02), 1950010.

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Market Risk Models in Crisis Conditions

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Abstract: The Value at Risk (VaR) measures the maximum loss that financial institutions can expect such as the Asian and Global financial crises. However, extreme value theory (EVT) was used in events that have data with extreme values. The objective of this study was to assess the VaR forecasts in varying states of economic circumstances for both the Asian Financial Crisis (AFC) and the Global Financial Crisis (GFC). The paper utilized two models compared under the extreme value theory which were the monthly and bimonthly Block Maxima (BM) and Peaks over Threshold (PoT). The VaR forecasts were based on the daily closing prices of the composite indices of the selected affected Asian countries, namely: Indonesia, Thailand, Malaysia, South Korea, Philippines, and Singapore in a span of 25 years from the year 1995 - 2019. There were three states of economic conditions analyzed for the AFC and GFC which were the pre-crisis, crisis, and post-crisis periods. Several backtesting namely Kupiec Test, Christoffersen Test, and Traffic Light Approach were performed to determine the accuracy of the said methods. From the results, most of the approaches are suitable for both AFC and GFC of pre-crisis and post-crisis period having the PoT as the ideal model since it consistently produced the most favourable VaR outcome for all the backtests. The failure of EVT models during the crisis period resulted from the failure to adjust to the abrupt shift in the market situations brought by the period.

Keywords: Block Maxima; Extreme Value Theory; Financial Crisis; Peaks over Threshold; Value at Risk

1. INTRODUCTION

With the pernicious effects of both the Global financial crisis (GFC) and the Asian financial crisis (AFC) on the economy of the affected countries, there has been a demand for risk assessment tools that can be utilized to somehow cushion the impact of financial crises that may happen in the future. Gaio, Pimenta, Lima, and Bonacim (2015) stressed that an effective tool that can help decision-makers in the future is measuring the value at risk (VaR). VaR alone has its limitations in terms of calculating the loss that financial institutions can expect. Nadarajah, Zhang, & Chang (2012) stressed that one of the criticisms of the

said measurement is that it does not take into account any potential loss that goes beyond the calculated loss. Expected Shortfall (ES), on the other hand, satisfies all four axioms of a coherent measurement of risk, and the result shows the average amount of loss that a financial institution can expect instead of fixating the loss by a certain value.

Common methods of computing VaR like Variance-Covariance that assumed data normality, Historical Simulation, and Monte Carlo Simulation to estimate the maximum loss. During extreme events like the financial crises where data are far from being normally distributed, EVT is utilized because it caters to data that contains extreme values (Singh & Allen, 2013). Szubzda & Chlebus (2019) concluded that

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during the GFC, EVT proved to be a reliable tool in measuring risk.

This paper is focused on assessing the risk forecasts of equity portfolios using value at risk in selected Asian countries in varying states of economic circumstances affected during the AFC and the GFC. Similar crisis conditions occurred in 2020 during the Covid-19 pandemic where markets crashed initially. The paper aimed to determine (a) how reliable are the extreme value theory models?; (b) which is the more effective models between the monthly and bimonthly BM and PoT in assessing the VaR in a financial crisis?

2. LITERATURE REVIEW

Traditional methods of computing the VaR have their limitations. The most important disadvantage, however, is the fact that financial data by nature does not usually reflect a normal distribution (Bollerslev, Todoroc, & Li, 2013). According to Szubzda et al. (2019) classic method of computing, VaR carries the tendency to underestimate risk especially during extreme events like the GFC and AFC. Singh, Allen & Robert (2013) stressed that one method that can be used to measure risk during extreme events is the EVT. The theory revolves around the idea of measuring risk using the extremes in a distribution.

A study conducted by Muela, Martín, & Sanz (2017) proves that the EVT is an efficient measure of both the market and liquidity risk. The study concluded that measuring risk with the use of EVT provided far better results than the standard approach of risk metrics. With liquidity risk measures, EVT proved to be far more superior to the Cornish-Fisher expansion or CFE.

Louangrath (2015) also found the EVT in assessing the risk of non-performing loans or NPL to be valuable in Thailand. The country's NPLs were deemed to be volatile across industries. The initial method for assessing risk in non-performing loans was time series, which was rejected due to its requirement of needing to have larger data. EVT was then used and concluded that two out of ten industries in Thailand surpass the limit for the amount of non-performing loans which truly helped the decision-makers in managing risk for NPLs.

There are two models under the EVT. The first one is called the BM method and the other is the PoT method. BM is one of the two models used under the EVT. This model divides the timeline into periods or blocks and identifies the maximum in the variable or extreme events in those successive periods (Bhattacharyya & Ritolia, 2008; Ferreira & de Haan, 2015; Singh et al., 2013). This model consists of non-overlapping periods with equal size (Ferreira et al., 2015). BM is also a model where identically distributed observations fit the generalized extreme value (GEV) distribution in a data series (Singh et al., 2013). BM can also be used as an estimation technique in different economic conditions (Bekiros & Georgoutsos, 2005). Furthermore, Singh et al. (2013) used BM as a risk modeling technique of EVT to predict the probability of risky events in normal market conditions and the probability of recessions or crises such as the GFC in the ASX-All Ordinaries (Australian) index and the S&P-500 (USA) Index.

Aside from BM, another methodology is compared as an estimation technique in different economic conditions such a method is PoT. This model is one of the various methods that fall bound by extreme value evaluation. From the study of Gilli & K llezi (2006), this model manipulates more data systematically which for that reason appears to become the model of preference in current applications. As mentioned by Bhattacharyya et al. (2008), it uses data more effectively that consider points above a given threshold. Hence, the PoT model happened to be a method of selection in the application of finance. According to Rydman (2018), the primary concept behind this method is to utilize a threshold to conceal values accounted as extreme in the data and to construct a framework for the extreme values by modeling the tail of the entire values that are greater than this threshold. The PoT model discerns two procedures: approach derived from hill estimator and approach derived on the presumption that the tail of the return rate distribution from generalized Pareto distribution (GPD).

3. METHODOLOGY

3.1 Theoretical Framework

There were several theories used in the conduct of this study. The black swan theory was used to show that showcase rare surprise events that can happen like the AFC and GFC, while the Arbitrage

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Pricing Theory was utilized to find the macroeconomic variables and factor loading model to determine the stock prices (Ruhani, Islan, Sulha, & Amad (2018), the extreme value theory was used to measure value at risk in extreme conditions during crises (Singh et al., 2013).

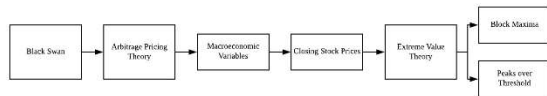


Figure. 1 Theoretical Framework

The forecasts were based on the daily closing prices of the composite indices of the affected selected Asian countries, namely: Indonesia, Thailand, Malaysia, South Korea, Philippines, and Singapore in a span of 25 years from the year 1995 - 2019. The statistical software, R Version 1.3.1093 was used.

Two approaches were used to compare under the EVT on getting the maximum loss of financial institutions, namely the monthly and bimonthly BM and PoT methodology to determine, through backtesting, which method was more efficient when it comes to calculating risk.

In the BM model, the cumulative distribution function (cdf) of the GEV distribution is defined as:

$$GEV(x, \xi, \mu, \sigma) = \begin{cases} \exp\left[-\left(1 + \xi\left(\frac{x-\mu}{\sigma}\right)\right)^{\frac{1}{\xi}}\right] & \text{if } \xi \neq 0 \text{ and } \left(1 + \xi\left(\frac{x-\mu}{\sigma}\right)\right) > 0 \\ \exp\left[-\exp\left(-\left(\frac{x-\mu}{\sigma}\right)\right)\right] & \text{if } \xi = 0 \end{cases} \quad (1)$$

From the GEV distribution, the VaR is estimated as follows:

$$VaR(\alpha) = \begin{cases} \hat{\mu}_n - \frac{\hat{\sigma}_n}{\xi} \left(1 - (-\ln(\alpha))^{-\xi}\right) & \text{to } \xi > 0 \text{ (Fréchet)} \\ \hat{\mu}_n - \hat{\sigma}_n \ln(-\ln(\alpha)) & \text{to } \xi = 0 \text{ (Gumbel)} \end{cases} \quad (2)$$

The GPD cumulative distribution function is provided below:

$$GPD(x; \xi, \mu, \sigma) = \begin{cases} 1 - \left(1 + \xi \frac{x-\mu}{\sigma}\right)^{\frac{1}{\xi}} & \xi \neq 0 \\ 1 - \exp\left(-\frac{x-\mu}{\sigma}\right) & \xi = 0 \end{cases} \quad (3)$$

The VaR under PoT is derived below:

$$VaR(\alpha) = u + \frac{\hat{\sigma}}{\xi} \left[\left[\frac{n}{N_u} (1-\alpha) \right]^{-\xi} - 1 \right] \quad (4)$$

In the BM model, the data were blocked into two parts, which are monthly and bi-monthly returns. To further test the models, they were applied to different economic conditions, pre-crisis, crisis and post-crisis under three null hypotheses for each of the backtests used. To test the reliability of the EVT models, the Kupiec Test, Christoffersen Test, and Traffic Light Approach were conducted to determine which approach between monthly and bimonthly BM and PoT are more effective in the different economic situations. The three backtests were performed with their respective null hypotheses: (a) in the Kupiec Test, that there is no difference between the actual and expected exceedances at 95% confidence level; (b) in the Christofferson test, that the occurrence of exceedances are not spread evenly across different periods at 95% confidence level; and in the Traffic Light Approach, that the Expected Shortfall (ES) cumulative probability level have no breach of zero level at 97.5% confidence interval.

Secondary data was utilized, specifically, the daily closing stock prices of the stock exchange of the six Asian countries, namely Thailand, Indonesia, Malaysia, South Korea, Philippines, and Singapore, which were extracted from Bloomberg and investment websites. The paper focused on the composite indices of each stock exchange. The financial crises that were used as the benchmark for the study were the AFC in 1997 and GFC in 2008. The time frame that was used for the research spanned a total of 25 years from the year 1995 - 2019, which was inclusive of two financial crises that affected the aforementioned countries. There were three states of economic conditions analyzed for the AFC: pre-crisis (January 1, 1995 to June 30, 1998), the crisis (July 1, 1998 to December 31, 1998), and the post-crisis (January 1, 1999 to December 31, 2005) period as sample data, and for the GFC: the pre-crisis (January 1, 2006 to June 30, 2008), the crisis (July 1, 2008 to March 31, 2009), and the

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post-crisis (April 1, 2009 to December 31, 2019) period as sample data. There were three states of economic conditions analyzed for the AFC: pre-crisis (January 1, 1995 to June 30, 1998), the crisis (July 1, 1998 to December 31, 1998), and the post-crisis (January 1, 1999 to December 31, 2005) period as sample data, and for the GFC: the pre-crisis (January 1, 2006 to June 30, 2008), the crisis (July 1, 2008 to March 31, 2009), and the post-crisis (April 1, 2009 to December 31, 2019) period as sample data.

The data analysis of the study started with the identification of the extreme values of the data. The mean residual plot was used in determining the extreme values of the computed. Two groups were formulated, which are the maxima and minima. The mean excess was calculated by deducting the mean of the observations beyond the value of u to the threshold. After calculating the mean excess, the values of u were graphed against the mean excess for the selection of the threshold for the maxima and minima. The mean residual plot was one of the methods used in determining the thresholds for the positive and negative extremes.

4. RESULTS AND DISCUSSION

Results show that most of the models are suitable for both AFC and GFC of pre-crisis and post-crisis period having the PoT as the ideal and superior model since it consistently produced the most favourable VaR outcome for all the backtests that is supported by the study of Szubzda et al (2019) stating the failure of EVT models during the crisis period resulted from the failure to adjust to the abrupt shift in the market situations brought by the period. The Christoffersen Test for both AFC and GFC of the crisis period in all countries resulted consistently in rejection of the null hypothesis. The Kupiec Test for both AFC and GFC of pre-crisis and post-crisis resulted in non-rejection of the null hypothesis. The Kupiec Test during the crisis period of both predicaments resulted in a non-rejection for both monthly and bimonthly BM methods and rejection of the PoT method, except for an instance with the bimonthly BM of Indonesia in GFC. The Traffic Light Approach of all the Fréchet distribution in the data

That one may be able to determine that the observed values match the expected applicable model and ascertain if the data complied with a particular distribution, the following tests, Kolmogorov-Smirnov (KS), Anderson Darling (AD), and chi-squared were conducted for its empirical distribution function goodness of fit test. AD is an alteration of KS as the prior takes into account the distribution being determined to calculate for the crucial value. That being the case, this research acted in accordance with the AD goodness of fit test on which distribution to position into the data.

In this study, there were various distributions taken into consideration which are Gumbel, Fréchet, lognormal, GEV, and GPD. The following distributions had also been encompassed in the study specifically lognormal. With the distributions stated, the best fit was determined by having the lowest test statistic. maximum likelihood estimation (MLE) was used to evaluate the distribution parameters. It is the predominant procedure for parameter estimation, wherein the specified estimate caused the confirmed values of data

displayed a yellow light, however not all yellow light is an indication of this distribution.

Even though the PoT is the ideal model from the backtest results of this study and others like Szubzda et al (2019) and Fulgentiusson (2012), the finance industry still uses the BM method due to several reasons. According to Ferreira et al. (2015), there are several possible reasons why financial institutions choose to utilize BM over PoT like the observations that are accessible can only be blocked. It is a model that is more favorable to apply since periods that are blocked can be seen in various circumstances appear naturally in many situations. Another reason is cost since BM is cheaper to implement during calm periods since it is more conservative and has lower VaR forecasts.

The results of these three backtests for the different Asian countries before, during and after the Asian and Global Financial Crises as listed in Table 1 below.

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Table 1 Tests Result of Asian & Global Financial Crises

Asian Financial Crisis				Global Financial Crisis		
Indonesia				Indonesia		
Monthly BM				Monthly BM		
	Pre-Crisis	Crisis	Post Crisis	Pre-Crisis	Crisis	Post Crisis
Kupiec Test	90.092	49.599	246.227	97.838	24.799	377.6
	Accept	Accept	Accept	Accept	Accept	Accept
Christofferson Test	0.6896	0.9153	0.6970	0.6896	0.3366	0.1829
	Reject	Reject	Reject	Reject	Reject	Reject
Traffic Light Test	Green	Red	Green	Green	Yellow	Green
	Accept	Reject	Accept	Accept	Reject	Accept
Bimonthly BM				Bimonthly BM		
	Pre-Crisis	Crisis	Post Crisis	Pre-Crisis	Crisis	Post Crisis
Kupiec Test	41.332	24.799	123.114	48.919	19.064	191.426
	Accept	Accept	Accept	Accept	Reject	Accept
Christofferson Test	0.7776	0.46527	0.9431	0.7776	0.4739	0.3543
	Reject	Reject	Reject	Reject	Reject	Reject
Traffic Light Test	Green	Red	Green	Green	Yellow	Green
	Accept	Reject	Accept	Accept	Reject	Accept
PoT				PoT		
	Pre-Crisis	Crisis	Post Crisis	Pre-Crisis	Crisis	Post Crisis
Kupiec Test	71.898	47.932	221.684	77.889	23.966	347.505
	Accept	Reject	Accept	Accept	Reject	Accept
Christofferson Test	0.2672	0.365	0.0514	0.2482	0.5218	0.0147
	Accept	Reject	Accept	Accept	Reject	Accept
Traffic Light Test	Green	Green	Green	Green	Green	Green
	Accept	Accept	Accept	Accept	Accept	Accept

Asian Financial Crisis				Global Financial Crisis		
Philippines				Philippines		
Monthly BM				Monthly BM		
	Pre-Crisis	Crisis	Post Crisis	Pre-Crisis	Crisis	Post Crisis
Kupiec Test	90.092	49.599	246.227	90.092	18.002	125.604
	Accept	Accept	Accept	Accept	Accept	Accept
Christofferson Test	0.6896	0.9153	0.3958	0.6896	0.3366	0.0003
	Reject	Reject	Reject	Reject	Reject	Accept
Traffic Light Test	Green	Red	Red	Green	Green	Green
	Accept	Reject	Reject	Accept	Accept	Accept
Bimonthly BM				Bimonthly BM		
	Pre-Crisis	Crisis	Post Crisis	Pre-Crisis	Crisis	Post Crisis
Kupiec Test	181.3668	24.799	123.114	41.332	11.4668	191.426
	Accept	Accept	Accept	Accept	Accept	Accept
Christofferson Test	0.7776	0.3366	0.5482	0.7776	0.4739	0.6799
	Reject	Reject	Reject	Reject	Reject	Reject
Traffic Light Test	Green	Yellow	Red	Green	Yellow	Green
	Accept	Reject	Reject	Accept	Reject	Accept
PoT				PoT		
	Pre-Crisis	Crisis	Post Crisis	Pre-Crisis	Crisis	Post Crisis
Kupiec Test	33.066	47.932	233.667	155.78	17.974	359.488
	Accept	Reject	Accept	Accept	Reject	Accept
Christofferson Test	0.2672	0.3650	0.0455	0.1024	0.5791	0.0131
	Accept	Reject	Accept	Accept	Reject	Accept
Traffic Light Test	Green	Green	Green	Green	Green	Green
	Accept	Accept	Accept	Accept	Accept	Accept
Asian Financial Crisis				Global Financial Crisis		
Malaysia				Malaysia		
Monthly BM				Monthly BM		

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	Pre-Crisis	Crisis	Post-Crisis	Pre-Crisis	Crisis	Post-Crisis							
							Christofferson Test	0.6896	0.6896	0.9153	0.6896	0.3366	0.5455
Kupiec Test	90.092	57.132	100.624	68.697	12.113	377.6		Reject	Reject	Reject	Reject	Reject	Reject
	Accept	Accept	Accept	Accept	Accept	Accept	Traffic Light Test	Red	Red	Red	Green	Yellow	Green
Christofferson Test	0.6896	0.9153	0.6970	0.0794	0.3366	0.5455		Reject	Reject	Accept	Accept	Reject	Accept
	Reject	Reject	Reject	Accept	Reject	Accept	Bimonthly BM			Bimonthly BM			
Traffic Light Test	Green	Red	Green	Green	Red	Green		Pre-Crisis	Crisis	Post-Crisis	Pre-Crisis	Crisis	Post-Crisis
	Accept	Reject	Accept	Accept	Reject	Accept	Kupiec Test	41.332	41.332	18.002	41.332	5.561	191.426
Bimonthly BM			Bimonthly BM					Accept	Accept	Accept	Accept	Accept	Accept
	Pre-Crisis	Crisis	Post-Crisis	Pre-Crisis	Crisis	Post-Crisis	Christofferson Test	0.7776	0.7776	0.3366	0.7776	0.4739	0.6799
Kupiec Test	41.332	12.113	63.957	41.332	5.561	125.604		Reject	Reject	Reject	Reject	Reject	Reject
	Accept	Accept	Accept	Accept	Accept	Accept	Traffic Light Test	Yellow	Yellow	Yellow	Green	Yellow	Green
Christofferson Test	0.7776	0.3366	0.5482	0.7776	0.4739	0.0003		Reject	Reject	Reject	Accept	Reject	Accept
	Reject	Reject	Reject	Reject	Reject	Accept	PoT			PoT			
Traffic Light Test	Green	Yellow	Green	Green	Yellow	Green		Pre-Crisis	Crisis	Post-Crisis	Pre-Crisis	Crisis	Post-Crisis
	Accept	Reject	Accept	Accept	Reject	Accept	Kupiec Test	71.898	71.898	47.932	71.898	41.94	353.496
PoT			PoT					Accept	Accept	Reject	Accept	Reject	Accept
	Pre-Crisis	Crisis	Post-Crisis	Pre-Crisis	Crisis	Post-Crisis	Christofferson Test	0.2672	0.2672	0.3650	0.2672	0.3968	0.0139
Kupiec Test	71.898	47.932	215.693	77.889	23.966	341.513		Accept	Reject	Reject	Accept	Reject	Accept
	Accept	Reject	Accept	Accept	Reject	Accept	Traffic Light Test	Green	Green	Green	Green	Green	Green
Christofferson Test	0.2672	0.3650	0.0546	0.2482	0.5218	0.0156		Accept	Accept	Accept	Accept	Accept	Accept
	Accept	Reject	Accept	Accept	Reject	Accept	Asian Financial Crisis			Global Financial Crisis			
Traffic Light Test	Green	Green	Green	Green	Green	Green	Singapore			Singapore			
	Accept	Accept	Accept	Accept	Accept	Accept	Monthly BM			Monthly BM			
Asian Financial Crisis			Global Financial Crisis					Pre-Crisis	Crisis	Post-Crisis	Pre-Crisis	Crisis	Post-Crisis
South Korea			South Korea				Kupiec Test	90.092	57.132	246.227	90.092	18.002	125.604
Monthly BM			Monthly BM					Accept	Accept	Accept	Accept	Accept	Accept
	Pre-Crisis	Crisis	Post-Crisis	Pre-Crisis	Crisis	Post-Crisis	Christofferson Test	0.6896	0.9153	0.3958	0.6896	0.3366	0.0003
Kupiec Test	90.092	90.092	57.132	90.092	24.799	377.6		Reject	Reject	Reject	Reject	Reject	Accept
	Accept	Accept	Accept	Accept	Accept	Accept							

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Traffic Light Test	Green	Red	Green	Green	Green	Green
	Reject	Reject	Accept	Accept	Accept	Accept
Bimonthly BM			Bimonthly BM			
	Pre-Crisis	Crisis	Post-Crisis	Pre-Crisis	Crisis	Post-Crisis
Kupiec Test	41.332	3.166	123.114	41.332	5.561	62.39
	Accept	Accept	Accept	Accept	Accept	Accept
Christofferson Test	0.7776	0.3366	0.5482	0.7776	0.4739	0.0098
	Reject	Reject	Reject	Reject	Reject	Accept
Traffic Light Test	Green	Red	Green	Green	Yellow	Green
	Accept	Reject	Accept	Accept	Reject	Accept
PoT			PoT			
	Pre-Crisis	Crisis	Post-Crisis	Pre-Crisis	Crisis	Post-Crisis
Kupiec Test	77.889	47.932	221.684	71.898	23.966	347.505
	Accept	Reject	Accept	Accept	Reject	Accept
Christofferson Test	0.2482	0.3650	0.0514	0.2672	0.5218	0.0147
	Accept	Reject	Accept	Accept	Reject	Accept
Traffic Light Test	Green	Green	Green	Green	Green	Green
	Accept	Accept	Accept	Accept	Accept	Accept

	Bimonthly BM			Bimonthly BM		
	Pre-Crisis	Crisis	Post-Crisis	Pre-Crisis	Crisis	Post-Crisis
Kupiec Test	16.682	24.799	123.114	41.332	5.561	41.332
	Accept	Accept	Accept	Accept	Accept	Accept
Christofferson Test	0.2148	0.4653	0.5482	0.7776	0.4739	0.7776
	Accept	Reject	Reject	Reject	Reject	Reject
Traffic Light Test	Yellow	Yellow	Green	Green	Yellow	Green
	Reject	Reject	Accept	Accept	Reject	Accept
PoT			PoT			
	Pre-Crisis	Crisis	Post-Crisis	Pre-Crisis	Crisis	Post-Crisis
Kupiec Test	71.898	47.932	209.701	65.906	23.966	65.906
	Accept	Reject	Accept	Accept	Reject	Accept
Christofferson Test	0.2672	0.3650	0.0581	0.2881	0.5218	0.2881
	Accept	Reject	Accept	Reject	Reject	Accept
Traffic Light Test	Green	Green	Green	Green	Green	Green
	Accept	Accept	Accept	Accept	Accept	Accept

4. CONCLUSIONS

Based on the findings of the study, the two models of the EVT are suitable for both the AFC and GFC during the pre-crisis and post-crisis periods in predicting VaR. Both BM and PoT models had unfavourable and inconsistent VaR results during both the AFC and GFC crisis period. PoT is clearly the superior model to the BM model due to its consistency in delivering VaR results from the backtests performed in the study. PoT is found to be a more reliable model compared to the monthly and bimonthly BM model. The BM model is prone to wasting information by dividing the data into blocks which is critical when dealing with extremes that have a smaller set of data. The BM method though has its own advantages when the data are not independent and individually distributed due to its periodic seasonality and a short range dependent time series

	Asian Financial Crisis			Global Financial Crisis		
	Thailand			Thailand		
	Monthly BM			Monthly BM		
	Pre-Crisis	Crisis	Post-Crisis	Pre-Crisis	Crisis	Post-Crisis
Kupiec Test	28.426	57.132	253.777	90.092	18.002	90.092
	Accept	Accept	Accept	Accept	Accept	Accept
Christofferson Test	0.0794	0.9153	0.6970	0.6896	0.3366	0.6896
	Accept	Reject	Reject	Reject	Reject	Reject
Traffic Light Test	Red	Red	Green	Green	Yellow	Green
	Reject	Reject	Accept	Accept	Reject	Accept

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within blocks of data. The BM model VaR exceedance estimations are more conservative than PoT due to the slow adjustment of BM to abrupt shifts of market movements during the crisis period. Although BM is easier to use since the block periods appear naturally in many situations, PoT is still superior due to its sensitivity to the higher threshold and thus better VaR exceedance estimations for the crisis periods. If the observed pattern given by the model is proceeding towards the actual values assessed for the crisis period, then it implies an upcoming crisis.

Due to the assumption of normality of market behaviour, underestimation of risk can lead to high losses. The use of EVT models is best suited to prepare the financial institution to limit losses from atypical events like black swans. Although the BM method is more used by financial institutions due to its more conservative and lower VaR estimations, the PoT model is more reliable albeit more costly in terms of higher VaR estimations.

The results of the paper are significant in identifying the strength and weaknesses of both BM and PoT in EVT during the pre-crisis, crisis, and post-crisis periods in forecasting VaR results. Combining EVT with the GARCH process would strengthen the VaR forecasts and hence limiting potential future losses.

5. REFERENCES

- Bekiros, S., & Georgoutsos, D. (2005). Estimation of Value-at-Risk by extreme value and conventional methods: a comparative evaluation of their predictive performance. *Journal of International Financial Markets, Institutions, and Money*, 15(3), 209–228. doi: 10.1016/j.intfin.2004.05.002.
- Bhattacharyya, M., & Ritolia, G. (2008). Conditional VaR using EVT – Towards a planned margin scheme. *International Review of Financial Analysis*, 17(2), 382–395. doi: 10.1016/j.irfa.2006.08.004.
- Bollerslev, T., Todorov, V., & Li S.Z. (2012). Jump tails, extreme dependencies, and the distributions of stock returns. Retrieved from <https://0-www-sciencedirect-com.lib1000.dlsu.edu.ph/science/article/pii/S0304407612001984>.
- Ferreira, A., & de Haan, L. (2015). On the block maxima method in extreme value theory: PWM estimators. *The Annals of Statistics*, 43(1), 276–298. doi:10.1214/14-aos1280.
- Fulgentiussan, H. (2012). *Push it to the limit. Testing the usefulness of extreme value theory in electricity markets*. Lund University Publications. Retrieved from <http://lup.lub.lu.se/luur/download?func=downloadFile&recordId=3166413&fileId=3166414>.
- Gaio, L., Pimenta, T., Lima, F., & Bonacim, C. (2015). Value-at-Risk in times of crises: An analysis in the Brazilian market. *African Journal of Business Management*, 9(5), 223–232. DOI: 10.5897/AJBM2015.7695.
- Gilli, M., & Këllezi, E. (2006). An Application of Extreme Value Theory for Measuring Financial Risk. *Computational Economics*, 27, 207–228. 10.1007/s10614-006-9025-7.
- Louangrath, P. (2015). Risk assessment of Non-Performing Loans (NPL) using extreme value theory. Retrieved from https://www.researchgate.net/publication/28332506_Risk_Assessment_of_Non-Performing_Loans_NPL_Using_Extreme_Value_Theory.
- Muela, S., Martín, C., & Sanz, R. (2017). An application of extreme value theory in estimating liquidity risk. *European Research on Management and Business Economics*, 23(3), 157–164. doi: 10.1016/j.iedeen.2017.05.001.
- Nadarajah, S., Zhang, B., & Chan S. (2012). Estimation methods for expected shortfall. Retrieved from <https://0-www-tandfonline-com.lib1000.dlsu.edu.ph/h/doi/full/10.1080/14697688.2013.816767>.

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- Ruhani, F., Islan, A., Salha, T. & Amad, T. (2018). Theories Explaining Stock Price Behavior: A Review of the Literature. *International Journal of Islamic Banking and Finance Research*, 2(2), 51-64. doi: 10.46281/ijibfr.v2i2.215.
- Rydman, M. (2018). Application of the Peaks-Over-Threshold Method on Insurance Data. *UUDM Project Report*. Retrieved from <https://www.diva-portal.org/smash/get/diva2:1231783/FULLTEXT01.pdf>.
- Singh, A., Allen, D., & Robert, P. (2013). Extreme market risk and extreme value theory. *Mathematics and Computers in Simulation*, 94, 310–328. doi: 10.1016/j.matcom.2012.05.010.
- Szubzda, F., Chlebus, M. (2019). Comparison of Block Maxima and Peaks Over Threshold Value-at-Risk models for market risk in various economic conditions. *Central European Economic Journal*, 6(53), 70-85. doi: 10.2478/ceej-2019-0005.

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Intergenerational Income Mobility and Poverty: An Empirical Analysis of Selected Districts of West Bengal in India

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Abstract: The progress of education distinguishes one generation from another and it breaks the barriers to the progress of society and takes society to the ultimate stage of development. When one generation advances from their ancestor in terms of education, that generation will advance in terms of income and as a result, the poverty of the society will be reduced. In this paper, we undertake a primary survey to look into if there is intergenerational education mobility, there will be intergenerational income mobility and the composite effect of intergenerational educational and income mobility reduces the poverty gap between upper and lower caste in India. We find if there is intergenerational educational mobility then there will be intergenerational income mobility using the Heckman selection model. Using Oaxaca-Blinder RIF-regression, we find the composition effect of the increase in intergenerational income mobility due to intergenerational educational mobility reduces the poverty gap between upper and lower caste children in India. It is also found that formal education not only increases income mobility but also reduces poverty. Due to the high opportunity cost of schooling, the parents who are uneducated or working in unorganized sector engage their children in household chores or the unorganized labour market. As a result, children face income immobility throughout their lifetime.

Key Words: Intergenerational Educational Mobility; Intergenerational Income Mobility; Poverty Gap; Caste.

1. INTRODUCTION

Intergenerational mobility or “fluidity” means the degree of difference in social circumstances between parents and offspring. High intergenerational mobility (relative or absolute) in a society means that the welfare of a person in that society is not so much dependent on the social status of their parents. When mobility is low in a society, a person’s chances of success in life are determined by their birth accident, which is against the fundamental rights of the society. We can also say that in a society where low mobility is a major obstacle to human resource development, a talented person born in a disadvantaged family has a much lower chance of success whereas a less talented person born in an established family has a much higher chance of success. Many economists and social scientists have found in their paper a high

degree of association in children and parent’s earnings bases on different demographic statuses (Solon, 1999; Blanden, et al., 2005; Hnatkovska, et al., 2013). On the other hand, many have been discussed intergenerational educational mobility by (1-estimated parental education coefficient) (Shavit & Blossfeld, 1993; Hertz, et al., 2007; Asher, et al., 2021). Since the waste of human resources has brought some people down to the bottom of the income distribution, policymakers should implement policies that increase mobility in the society as high mobility accelerates inclusive growth. The discussion of mobility with individual life can be called an individualistic scale, but it can be called a broader scale because it also focuses on overall inequality, poverty, social and economic development, and political spare. It is seen that

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there is lower mobility in adulthood when a child is born with high inequality (Neidhöfer, 2016; Hassler, et al., 2007). The socio-economic structure and culture that has developed in India based on ancient religious precepts and the concept of scaring impurity and uncleanness has further added to class inequality. Physical work is considered to be a lowly form of work, and elite society completely disassociates them from such labor-intensive work. In general, elite Hindus become the affluent class and many lower caste people were exiled to the bottom of the financial pyramid, yet this situation is almost unchanged. Even today, the Sudra (Other Backward Class-OBC) or Dalits (Scheduled Caste-SC/Scheduled Tribe-ST) are not only economically backward, but they are also deprived of social status, education and politics. Socio-Economic caste Census Survey (SECC) 2011 has collected information on the socio-economic status of 179.7 million households and found 70.7(39.36%) million household are not poor, 1.6(.91%) million family suffering from poverty severity, and 87.2(48.54%) million household victimizing from deprivation (Gaur & Rao, 2020). The perception of inequality worsens the belief in access to socioeconomic opportunity, thereby decreasing the chances of low-SES people to engage in activity that will increase their mobility (Browman, et al., 2019; Abowd, et al., 2018). In rural areas, intergenerational income persistence is lower and India is now moving forward to cross caste equality, but the progress is very slow (Mohammed, 2019). In each decade half of the poor children in the USA remained poor and the rise in poverty was eliminated by an increase in mobility (Gottschalk & Danziger, 1999).

Although there are papers on intergenerational income mobility and educational mobility that has advocated the association between child and parental income and between child and parental education; and they theorized income immobility is an important parameter to raise inequality. In this paper, we will examine whether intergenerational educational mobility increases income mobility and how parent's education and occupation determine the fate of their next generation. The second objective is whether the increase in intergenerational income mobility due to an increase in educational mobility reduces the poverty gap between upper caste (UC) and lower caste children.

This paper identifies the relationship between intergenerational income and educational mobility, and how parent's employment and educational status determine the fate of their next-generation using the Heckman selection method. We use the Oaxaca-Blinder RIF regression model to find out the composition effect of educational and income mobility on the poverty gap between UC and lower caste children.

The survey shows that intergenerational educational mobility increases intergenerational income mobility and the children whose parents are less educated and casual workers are more likely to face income immobility throughout their lifetime and join the unorganized labour market or household chores as did their parents or older household member. The important finding is that the composition effect of intergenerational educational and income mobility reduces the poverty gap between upper caste and lower caste.

2. METHODOLOGY

The data we use are taken from a primary survey conducted in rural India. Data relating to the household level and individual level characteristics are collected using the multi-stage purposive sampling method.

2.1 Heckman Selection Method

The Heckman selection model consists of two equation models. First, the regression model:

$Y_i = X_i\alpha + \epsilon_1$ (1). Second, other is selection model:
 $W_i\beta + \epsilon_2 > 0$ (2) Following assumption holds: $\epsilon_1 \sim N(0, \sigma)$ (3a) $\epsilon_2 \sim N(0, 1)$ (3b) $\text{Corr}(\epsilon_1, \epsilon_2) = \rho$ (3c).

Where Y_i is the dependent variable, X_i means observable characteristics of the independent variable, β means parameter require to estimates and ϵ_1 denotes normally distributed error term with mean zero and standard deviation σ . On the other hand, W_i means observable characteristics including overlapping variables with X_i and β means parameter requires to estimate. Whereas ϵ_2 is error term distributed with mean zero and standard deviation 1. ρ means the correlation between ϵ_1 and ϵ_2 . The inverse mills ratio ($\lambda = \rho\sigma$) means the estimated selection coefficient.

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2.2 Oaxaca-Blinder RIF Regression Model

$$\Delta FGT = \bar{E}^{SC/ST \text{ or } OBC} (\hat{\beta}_{SC/ST \text{ or } OBC} - \hat{\beta}_c) + (\bar{E}^{SC/ST \text{ or } OBC} - \bar{E}^c) \hat{\beta}_c + (\bar{E}^c - \bar{E}^{GEN}) \hat{\beta}_{GEN} + \bar{E}^c (\hat{\beta}_c - \hat{\beta}_{GEN}) \dots (13)^2$$

3. RESULTS AND DISCUSSION

3.1 Heckman Selection Model Results

In table1 we are trying to understand with the Heckman model whether educational mobility increases income mobility and we are also trying to find out how parental employment and education affect the income mobility of children. Here daily income equation includes log daily parental income³, child years of schooling, child permanent occupation, child age, earning members in the household, female dummy, regional zone dummy, child parents illiterate, casual employment status parent of SC/ST child as independent variable and selection equation (intergenerational income mobility⁴(of the children =1, or otherwise 0) includes intergenerational educational mobility (mobility =1 if years of schooling of child > maximum (years of schooling of father, years of schooling of mother) and mobility=0, otherwise), child permanent occupation, caste dummy(SC/ST and OBC) and religion dummy (Muslim) as the independent variables. In our model both ρ and λ are significantly different from zero that means two equations are related and there is sample selection present. We find a strong association between child and parental income; a 1% increase in parent's income increases child income by .172%. Holding other covariates constant, a one-year additional increase in child formal education is predicted to increase child income by 2.7%. We have seen in many papers that income mobility increases when formal education increases, the relationship of children's income with the education that we have found in our paper is no different from their research. The daily earning will be more likely 114.4% higher for the children who are working in an organized sector than those who are engaged in the unorganized sector. Our survey shows that the

daily earnings of SC/ST children are 13.9% lower than upper-caste children; there is no significant gap between OBC and upper caste children. The children with educational mobility are 31.8% more likely to have income mobility. If there is educational mobility, the probability of being income mobility is much higher. The higher the number of earning members in a family, the chances of income mobility of the children of that family is 3.07% more. The results show a 5.9% lower income among the children of parents who have low educational qualifications. The SC/ST children with irregular parental employment account for a 3% income gap. The only reason behind this scenario is that due to the low income of uneducated and casual worker parents, the opportunity cost of sending their children to work is much lower than sending them to school. So the children of such households fall into a low-level equilibrium trap for generations. This is because children are born in a less conducive family, and the fate of their success is determined by their accidental birth in a lower caste family or lower-income family. The south and west zone of West Bengal exhibit a significant income gap compared to the north zone. We find the most important thing in table-1 that distinguishes our research from others on intergenerational mobility is that if there is intergenerational educational mobility then there will be intergenerational income mobility. Now we want to see the composition effect of income mobility due to educational mobility has a significant role to reduce the poverty gap between lower and upper caste children. For this, we have utilized the Oaxaca-Blinder RIF regression model.

Table2-Heckman Selection Method

Variable	Log Daily Child Income
Log Daily Parental Income	.172*** (.019)
Child Years of Schooling	.027*** (.003)
Child Age	-.012*** (.002)

²We will estimates this equation by Oaxaca-Blinder RIF-regression model (Firpo, et. al, 2018). The detail derivation of the equation is given in appendix. GEN- General Caste (UC).

³Child daily incomes are normalized by GDP deflator of survey year 2019. On the other hand , father and mother

daily income is normalized by corresponding GDP deflator when their age was 59(the retirement age) and parent's daily income when their age less than equal to 59 is normalized by 2019 GDP deflator.

⁴Mobility =1 if daily income or education of child > maximum (daily income or education of father, daily income or education of mother) and mobility=0, otherwise.

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Earning Member	.037** (.018)
Female(Yes=1, Otherwise 0)	.052 (.056)
West Zone (Yes=1, Otherwise 0)	-.739*** (.048)
South Zone (Yes=1, Otherwise 0)	-.313*** (.041)
Illiterate Parent (Yes=1, Otherwise 0)	-.056** (.030)
SC/ST parent casual worker (Yes=1, Otherwise 0)	-.102*** (.038)
Constant	5.219*** (.142)
Selection Equation:	
Intergenerational Income Mobility (Yes=1, Otherwise 0)	
Intergenerational Educational Mobility(Yes=1, Otherwise 0)	.318*** (.104)
Child Age	.044*** (.002)
Child Permanent Occupation(Yes=1, otherwise 0)	1.144*** (.063)
SC/ST Child (Yes=1, Otherwise 0)	-.139** (.073)
OBC Child (Yes=1, Otherwise 0)	.167 (.106)
Muslim Child (Yes=1, Otherwise 0)	-.056 (.098)
Constant	-2.719*** (.165)
Lamda	-.394*** (.049)
Rho	-0.850
Sigma	.464
Wald chi2(9)	1288.11***
Censored Observation	1476
Uncensored Observation	904
Total	2380
Note: Standard errors are reported in parentheses. *, ** and *** indicate significance at 10%, 5% and 1% respectively.	

3.2 Oaxaca-Blinder RIF Regression Model Results

The detailed methodology of how we get the results of table-2 and table-3 are given in the appendix. Here we use Foster-Greer-Thorbecke (FGT) as a distributional statistic to measure the incidence, the depth and the severity of poverty. The poverty line proposed by the Rangarajan committee (2014) for rural India at 2011-12 price level is 32(Rupees (Rs)-Indian currency); those who cannot earn daily Rs 32 are considered under the below the poverty line. In this paper Rs.32 is used as the poverty line. The children's daily earnings are deflated by 2019 state gross domestic product deflator considering 2012 as the base year. The top panel of table-2 and table-3 shows an average of the change in poverty among upper and backward caste children. Our survey shows 27% UC, 36.6% SC/ST and 34.3% OBC child significantly lies under BPL category. On the other hand, 25.5% UC, 34.6% SC/ST and 34.3% OBC child suffer from the depth of poverty. We also find 25.1% UC, 34.0% SC/ST and 34.3% OBC child suffers from severity poverty. The total difference row in table-2&3 shows the poverty gap between UC and SC/ST or OBC. Due to the statistical significance of specification error in table-2, we can easily consider a more flexible and accurate model to capture the composition effect on the poverty gap. The specification error generally exhibits departures from the non-linearity of the RIF' regression and the RIF depends on the distribution of daily earning (and explanatory variables through its effect on daily earning). The specification error is not significantly different from zero for table-3. Although the specification error is very small than the overall changes in the distributional statistics, this implies that RIF regression gives us highly accurate estimates of the overall composition and coefficient effects in our empirical analysis.

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Table3-Determinants of the Changes in Poverty in West Bengal: RIF Decomposition⁵

	FGT _{α=0} Head Count Ratio		FGT _{α=1} Poverty Depth		FGT _{α=2} Poverty Severity	
Average RIF						
General Caste	.270***	.016	.255***	.015	.251***	.016
Counterfactual SC/ST B's General E's	.383***	.020	.367***	.020	.362***	.021
SC/ST	.366***	.013	.346***	.013	.340***	.012
Total Difference	-.096***	.021	-.091***	.019	-.088***	.019
	Composition Effect	Coefficient Effect	Composition Effect	Coefficient Effect	Composition Effect	Coefficient Effect
Aggregate Decomposition	-.113*** (.015)	.017 (.022)	-.111*** (.016)	.020 (.022)	-.110*** (.015)	.021 (.022)
Pure Composition Effect	-.109** (.014)		-.107*** (.015)		-.106*** (.014)	
Pure Coefficient Effect		.013 (.018)		.005 (.019)		.016 (.018)
Specification Error	-.003** (.002)		-.004** (.002)		-.004** (.002)	
Reweighting Error		.004 (.015)		.005 (.015)		.005 (.016)
Detailed Decomposition	Pure composition effect	pure coefficient effect	Pure composition effect	pure coefficient effect	Pure composition effect	pure coefficient effect
Mobility Composition	-.048*** (.008)	.092 (.057)	-.044*** (.008)	.093* (.054)	-.043*** (.007)	.093 (.056)
Service Composition	-.022*** (.004)	-.009 (.012)	-.023*** (.004)	-.015 (.010)	-.023*** (.004)	-.017 (.011)
Education Composition	-.023** (.008)	-.169** (.057)	-.025*** (.008)	-.152** (.059)	-.025*** (.009)	-.145** (.062)
Age Composition	-.009** (.034)	.016 (.132)	-.010** (.004)	.022 (.135)	-.010*** (.004)	.024 (.132)
HH Composition	-.004 (.003)	.069 (.067)	-.003 (.002)	.062 (.067)	-.003 (.002)	.060 (.065)
Constant		.014 (.177)		.004 (.177)		.0007 (.180)

Note: Significance levels: *p<0.1, **p<.05, ***p<.01. Bootstrapped standard errors over the entire procedure (500 replications) were used to compute the p-value. Mobility Composition: Intergenerational educational mobility, Intergenerational income mobility; Service Composition: includes Public service, Private Service and Self Employed; Education Composition: includes primary, upper primary, Secondary, Higher Secondary and above Higher Secondary; Age Composition: 16-25, 26-35, 36-45, 46-55, 56-65; HH Composition: includes Number of Earning Member, Number of Siblings.

The specification error is regardless little comparative with the total change in the distribution statistics, which shows that RIF regression gives profoundly precise appraisals of the

total composition and economic impacts in the above example require concentration here. It is interesting findings that incidence of poverty index value decreased from .343 to .328 due to change in

⁵Table-3 is given in appendix.

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characteristics, but the coefficient effect changes enough large to counteract that effect between UC and OBC child.

The detailed decomposition results show an interesting picture in terms of pure composition and pure coefficient effect. The increase in income mobility due to an increase in educational mobility has contributed toward a decrease of incidence, depth and severity of poverty, with almost no effect from changes in the coefficient effects. The earning structure effect of service composition reduces the poverty gap between UC and SC/ST; this may be because the SC/ST society has enjoyed a wide range of government benefits since the enactment of the Indian constitution. So it can be said that the policy implications that have been taken for SC/ST since independence, such as reservation in the educational institution, government job and loans with low interest for self-help project somewhat successful in reducing poverty. But the result we get for OBC is exactly the opposite of the result we get for SC/ST children. The reason for this is that OBC children have not benefited in the way that SC/ST have benefited since independence. There is no reason to deny that education is not the backbone of the nation. Education brings about the welfare of the entire human race as well as eliminates the existing inequalities and injustice from society. Our study found that the education composition effect plays an important role in reducing the poverty gap among UC and backward children. The earning structure effect of age composition is negative that implies the age composition effect reduces the poverty gap among UC and SC/ST or OBC child, but the coefficient effect of age composition is much stronger positive than the composition effect for OBC child this means that coefficient effect will again increase the poverty gap between UC and OBC child. We do not find any significant effect of household composition on the poverty gap between UC and SC/ST, but we find the positive pure coefficient effect that helps to increase the poverty gap among UC and OBC. The increase in the number of siblings in the household and decrease in the number of earning members has contributed toward an increase in poverty among OBC children.

4. CONCLUSIONS

The purpose for which we started this study has been completely successful. We have applied the Heckman selection model and conclude that if there

is intergenerational educational mobility then there will be intergenerational income mobility. Besides, we have seen that education is the source of income mobility and the income mobility is lower for the child whose parents are less educated and engaged in the unorganized sector. On the other hand, applying the Oaxaca-Blinder model we have found that an increase in intergenerational income mobility due to an increase in intergenerational educational mobility reduces poverty and formal education plays an important role to reduce poverty among backward children. There is an interrelationship between educational mobility, income mobility and poverty. If we can increase the expansion of education among backward children, we will be able to come out of the curse of poverty.

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6. REFERENCES

- Abowd, J. M., McKinney, K. L., & Zhao, N. L. (2018). Earnings Inequality and Mobility Trends in the United States: Nationally Representative Estimates from Longitudinally Linked Employer-Employee Data. *Journal of Labour Economics*, 36(S1).
- Asher, S., Novosad, P., & Rafkin, C. (2021). Intergenerational Mobility in India: New Methods and Estimates Across Time, Space, and Communities. *paulnovosad.com*.
- Blanden, J., Gregg, P., & Machin, S. (2005). Intergenerational Mobility in Europe and North America. *Centre for Economic Performance*.
- Browman, A. S., Destin, M., Kearney, M. S., & Levine, P. B. (2019). How economic inequality shapes mobility expectations and behaviour in disadvantaged youth. *Nature Human Behaviour*, 3, 214-220.

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Firpo S. P., Fortin N.M., & Lemieux T. (2018). Decomposing wage Distribution Using Recentered Influence Function Regressions. *Econometrics*, 6, 28.

Gaur, S., & Rao, N. S. (2020). Poverty Measurement in India: A Status Update. *Ministry of Rural Development*, Working Paper No. 1/2020.

Gottschalk, P., & Danziger, S. (1999). Income Mobility and Exits from Poverty of American Children, 1970-1992. *eScholarship@BC*.

Hassler, J., Mora, J. V., & Zeira, J. (2007). Inequality and mobility. *Journal of Economic Growth*, 12, 235–259.

Hnatkovska, V., Lahiri, A., & Paul, S. B. (2013). Breaking the Caste Barrier: Intergenerational Mobility in India. *Journal of Human Resources*, 48(2), 435-473.

Mohammed, A. (2019). Does a good father now have to be rich? Intergenerational income mobility in rural India. *Labour Economics*, 60, 99-114.

Neidhöfer, G. (2016). Intergenerational mobility and the rise and fall of inequality: Lessons from Latin America. *The Journal of Economic Inequality*, 17, pages499–520.

Shavit, Y., & Blossfeld, H. (1993). Persistent inequality: Changing educational attainment in thirteen countries. *Westview Press*.

Solon, G. (1999). Intergenerational Mobility in the Labor Market. *Handbook of Labor Economics*, 3(Part A), 1761-1800.

T.Hertz, Jayasundera, T., Piraino, P., Selcuk, S., Smith, N., & Verashchagina, A. (2007). The Inheritance of Educational Inequality: International Comparisons and Fifty-Year Trends. *Journal of Economic Analysis & Policy*, 7(7), Article 10.

Appendix:

2.2 Oaxaca-Blinder RIF Regression Model

Say, a joint distribution function which establish the relationship between the dependent variable, the independent exogenous variable, and group variable: Dependent variable (W), the independent variables (E) and the caste variable (G) – (f_{W,E,G}(w_i,e_i, G_i). So the joint probability distribution function and cumulative distribution of W conditional on G:

$$f_{WE}^k(w,e) = f_{W/E}^k(W/E) f_E^k(E) \dots\dots (1);$$

$$F_W^k(w) = \int F_{W/E}^k(W/E) dF_E^k(E) \dots\dots\dots (2) \text{Where } k \in (0, 1).$$

The differences between two groups 0(UC or GEN) and 1(SC/ST or OBC) for FGT index, the cumulative conditional distribution of W can be written to calculate the gap:

$$\Delta FGT = FGT_{SC/ST \text{ or } OBC} - FGT_{GEN} = FGT(F_W^{SC/ST \text{ or } OBC}) - FGT(F_W^{GEN}) \dots\dots\dots (3)$$

$\Delta FGT = FGT \{ \int F_{W/E}^{SC/ST \text{ or } OBC}(W/E) dF_E^{SC/ST \text{ or } OBC}(E) \} - FGT \{ \int F_{W/E}^{GEN}(W/E) dF_E^{GEN}(E) \} \dots\dots\dots (4)$. ΔFGT will arise because of differences in the distribution of exogenous character of E's $\{dF_E^{SC/ST \text{ or } OBC}(E) \neq dF_E^{GEN}(E)\}$ or because of differences in the relationships between W and E $\{F_{W/E}^{SC/ST \text{ or } OBC}(W/E) \neq F_{W/E}^{GEN}(W/E)\}$. The differences in average characteristics and the differences in coefficients can be discussed by standard OB decomposition method.

It is appropriate to establish a counterfactual(The counterfactual distribution FGT_c is the one that would have prevailed under the wage structure of SC/ST or OBC child between dependent and independent variable but with the distribution of observed and unobserved characteristics of the independent variable of the general child) scenario to understand how significant differences in characteristics (composition effect or policy effect) and differences in coefficients (wage structure effect or coefficients effect) are to clarify the overall gap in distribution statistic ΔFGT .

$$FGT_c = FGT(F_W^c) = FGT \{ \int F_{W/E}^{GEN}(W/E) dF_E^{SC/ST \text{ or } OBC}(E) \} \dots\dots\dots (5)$$

The difference in the distribution statistics FGT can be disaggregated into two using this counterfactual:

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$$\Delta FGT = (FGT_{SC/STorOBC} - FGT_c) + (FGT_c - FGT_{GEN}) \dots (6); \Delta FGT_s = (FGT_{SC/STorOBC} - FGT_c) \& \Delta FGT_E = (FGT_c - FGT_{GEN}) \dots (7).$$

Where ΔFGT_E (composition effect) means the gap measured to differences in characteristics, while ΔFGT_s (Coefficient effect) would arise due to the differences in the relationships between W and E. Counterfactual statistics identification – RIF regression:

$$FGT_{SC/STorOBC} = E[RIF\{w_i; FGT(F_{W/E}^{SC/STorOBC})\}] = \bar{E}^{SC/STorOBC} \hat{\beta}_{SC/STorOBC} \dots (8)$$

$$FGT_{GEN} = E[RIF\{w_i; FGT(F_{W/E}^{SC/STorOBC})\}] = \bar{E}^{GEN} \hat{\beta}_{GEN} \dots (9)$$

$$FGT_c = \bar{E}^{SC/STorOBC} \hat{\beta}_{GEN} \dots (10)$$

The standard OB decomposition where

$$\Delta FGT_E = (\bar{E}^{SC/STorOBC} - \bar{E}^{GEN}) \hat{\beta}_{GEN} \text{ and}$$

$$\Delta FGT_s = \bar{E}^{SC/STorOBC} (\hat{\beta}_{SC/STorOBC} - \hat{\beta}_{GEN}).$$

Reweighting approximation to identify the counterfactual distribution $F_{W/E}^{GEN}(W/E)$ $dF_E^{SC/STorOBC}(E)$ based on the observed data. The challenge of defining the counterfactual scenario is that the distribution of outcomes and features that the counterfactual distribution $F_{W/E}^c$ is not explicitly observed. An approximation for counterfactual distribution can be obtained by multiplying the observed distribution of characteristics $dF_E^{GEN}(E)$ with a factor $\psi(E)$, hence it is identical to the distribution $dF_E^{SC/STorOBC}(E)$:

$$F_W^c = \int F_{W/E}^{GEN}(W/E) dF_E^{SC/STorOBC}(E) \cong \int F_{W/E}^{GEN}(W/E) dF_E^{GEN}(E) \psi(E) \dots (11).$$

Once these reweighting factors are obtained, equation (10) is estimated as:

$$FGT_c = E[RIF\{w_i; FGT(F_{W/E}^c)\}] = \bar{E}^c \hat{\beta}^c \dots (12)$$

And decomposition components are now defined as:

$$\Delta FGT = \bar{E}^{SC/STorOBC} (\hat{\beta}_{SC/STorOBC} - \hat{\beta}^c) + (\bar{E}^{SC/STorOBC} - \bar{E}^c) \hat{\beta}^c + (\bar{E}^c - \bar{E}^{GEN}) \hat{\beta}_{GEN} + \bar{E}^c (\hat{\beta}^c - \hat{\beta}_{GEN}) \dots (13)$$

The first two parts ΔFGT_s^p ($\bar{E}^{SC/STorOBC} (\hat{\beta}_{SC/STorOBC} - \hat{\beta}^c)$) + ΔFGT_s^e ($(\bar{E}^{SC/STorOBC} - \bar{E}^c) \hat{\beta}^c$) reflect the OB aggregate wage structure or coefficient effect, whereas ΔFGT_E^e ($(\bar{E}^c - \bar{E}^{GEN}) \hat{\beta}_{GEN}$) + ΔS_E^e ($\bar{E}^c (\hat{\beta}^c - \hat{\beta}_{SC/STorOBC})$) corresponds to the aggregate composition effect on the poverty severity gap. These two components are further decomposed into a pure wage structure (ΔFGT_s^p) and composition effect (ΔFGT_E^e), plus two components that can be used to evaluate the model's overall fitness. ΔFGT_s^e is the reweighting error which is used to determine the consistency of the reweighting technique and in large samples it is supposed to go to zero. The specification error (ΔFGT_E^e) is used to identify the model specification or RIF approximation to determine the value of deviations from linearity.

Table 1: Summary Statistics

	Mean	Standard Deviation	Min	Max	Number of Observations
Log Child Income	4.682	.780	-3.734	7.421	1669
Log Parental Average Income	4.075	.733	1.291	6.902	2610
Age	35.383	12.627	16	70	2611
Child's Years of Schooling	8.125	4.572	0	19	2611
Earning Members in Household	1.410	.754	1	5	2588
Region(Reference group:North Zone)					
West Zone	.331	.470	0	1	2611
South Zone	.373	.483	0	1	2611
Female	.326	.469	0	1	2611
Illiterate Parents(Yes=1, No=0)	.363	.481	0	1	2611
SC/ST Parents Casual Worker(Yes=1, No=0)	.151	.358	0	1	2611
Intergenerational Income Mobility(Yes=1, No=0)	.434	.495	0	1	2611
Intergenerational Educational Mobility (Yes=1, No=0)	.891	.310	0	1	2611

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Permanent Occupation(Yes=1,No=0)	.465	.498	0	1	2611
Religion:					
Muslim (Yes=1,No=0)	.192	.394	0	1	2611
Caste(Reference group: General Caste)					
SC/ST (Yes=1,No=0)	.510	.499	0	1	2611
OBC (Yes=1,No=0)	.140	.347	0	1	2611
Day Adjusted Child Income	93.136	129.158	0	1569.155	2400
Govt. Service(Yes=1,No=0)	.028	.165	0	1	2611
Private Service(Yes=1,No=0)	.098	.297	0	1	2611
Self Employed Service(Yes=1,No=0)	.173	.379	0	1	2611
Primary(Yes=1,No=0)	.200	.400	0	1	2611
Upper Primary(Yes=1,No=0)	.210	.407	0	1	2611
Secondary(Yes=1,No=0)	.202	.401	0	1	2611
Higher Secondary(Yes=1,No=0)	.145	.353	0	1	2611
Above Higher Secondary(Yes=1,No=0)	.140	.348	0	1	2611
Total Child	3.627	1.373	1	7	2611
Child Age:					
16–25 years (Yes=1,No=0)	.134	.341	0	1	2611
26–35 years(Yes=1,No=0)	.377	.484	0	1	2611
36–45 years(Yes=1,No=0)	.225	.417	0	1	2611
46–55 years(Yes=1,No=0)	.139	.346	0	1	2611
56–65 years (Yes=1,No=0)	.085	.280	0	1	2611

Table4-Determinants of the Changes in Poverty in West Bengal: RIF Decomposition

	FGT _{a=0}		FGT _{a=1}		FGT _{a=2}	
	HeadCount Ratio		Poverty Depth		Poverty Severity	
Average RIF						
General Caste	.270***	.015	.255***	.015	.251***	.015
Counterfactual OBC B's General E's	.328***	.030	.317***	.033	.314***	.031
OBC	.343***	.024	.343***	.026	.343***	.025
Total Difference	-.072**	.031	-.087***	.029	-.091***	.029
	Composition Effect	Coefficient Effect	Composition Effect	Coefficient Effect	Composition Effect	Coefficient Effect
Aggregate Decomposition	-.058** (.028)	-.014 (.035)	-.062** (.029)	-.025 (.039)	-.063** (.029)	-.028 (.035)
Pure Composition Effect	-.061** (.026)		-.066** (.026)		-.068*** (.006)	
Pure Coefficient Effect		.055* (.032)		.046 (.032)		.043 (.030)
Specification Error	.003 (.008)		.004 (.007)		.005 (.007)	
Reweighting Error		-.070*** (.025)		-.071*** (.025)		-.071*** (.025)

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Detailed Decomposition	Pure composition effect	pure coefficient effect	Pure composition effect	pure coefficient effect	Pure composition effect	pure coefficient effect
Mobility Composition	-.053*** (.012)	.047 (.104)	-.048*** (.010)	.043 (.110)	-.046** (.011)	.042 (.110)
Service Composition	.021** (.010)	.006 (.020)	.024** (.013)	-.001 (.018)	.024** (.012)	-.003 (.018)
Education	-.009* (.005)	-.223** (.098)	-.010** (.005)	-.218** (.093)	-.010** (.005)	-.216** (.097)
Age Composition	-.033*** (.008)	.232*** (.089)	-.034*** (.008)	.223** (.094)	-.034*** (.007)	.220** (.099)
HH Composition	.014 (.014)	.245** (.105)	.002 (.012)	.256*** (.095)	-.001 (.013)	.260*** (.098)
Constant		-.253 (.219)		-.257 (.226)		-.259 (.225)

Note: Significance levels: *p<0.1, **p<.05, ***p<.01. Bootstrapped standard errors over the entire procedure (500 replications) were used to compute the p-value. Mobility Composition: Intergenerational educational mobility, Intergenerational income mobility; Service Composition: includes Public service, Private Service and Self Employed; Education: includes primary, upper primary, Secondary, Higher Secondary and above Higher Secondary; Age Composition: includes 16-25, 26-35, 36-45, 46-55, 56-65 years; HH Composition: includes Number of Earning Member, Number Siblings.

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Microeconomic Factors Impacting Profitability of listed Industrial and Services Firms in the Philippines: An Analysis

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Abstract: This study aims to investigate the impact of microeconomic factors, namely, capital structure, liquidity, sales growth, firm age, and firm size, on the return on equity (ROE) of 75 industrial and services firms listed in the Philippine Stock Exchange years 2008-2019 using panel regression. The results revealed that capital structure, liquidity, and firm age have a significant negative effect while sales growth has a significant positive impact on ROE. The impact of capital structure, liquidity, sales growth, and firm age on firms' performance is consistent with pecking order theory, trade-off theory, firm growth theory, and structural inertia theory, respectively. It is proposed that industrial and service enterprises in the Philippines maintain an adequate capital structure, establish an efficient system of liquidity management, increase revenue streams and improve innovation to improve corporate profitability

Key Words: microeconomic factors, return on equity, industrial firms, services firms, firm profitability

1. INTRODUCTION

The changing business environment continues to drive many researchers' and practitioners' curiosity in investigating the different factors that may impact firm performance (Pervan, Pervan, & Ćurak 2019), especially that the survival of an organization has been more uncertain due to the ongoing pandemic crisis caused by the coronavirus disease 2019 (COVID-19) since early 2020 (Donthu & Gustafsson, 2020). Profitable firms are sources of sustainable economic growth, providing employment opportunities, fostering innovation, and paying taxes (Lazar, 2016).

Using profitability ratios computed from a company's financial statements, the management can assess the firm's "ability to generate earnings from

sales, face a financial downturn, and withstand the competition" (Ajanthan, as cited in Ismail, 2016, p. 305). A higher profit ratio is indicative of sound financial performance. An example of this ratio is return on equity (ROE), which reflects the firm's ability to increase profits without adding new equity (Kijewska, 2016).

Knowing the factors that influence firm profitability is essential in formulating managerial decisions that may affect its resources. Some of the widely studied financial ratios are capital structure, liquidity, and growth. In addition, the age and size of the firm are also considered to be critical company-specific factors that influence the firm's profitability. Most studies in emerging economies show a negative relationship between leverage and firm performance (Hamid et al., 2015; Hoang et al., 2019; Le & Phan,



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2017; Ramadan & Ramadan, 2015). In contrast, liquidity, which is often measured through the current ratio, is seen to have a positive impact on firm profitability in several studies (Durrah et al., 2016; Hongli et al., 2019; Ismail, 2016). Ismail (2016) argued that current assets are necessary for a firm's survival in a financial distress situation.

Similarly, sales growth is generally shown to positively impact companies' profitability (Lazar, 2016; Odalo et al., 2016). The effect of firm age on profitability, on the other hand, is contradicting in different studies. While Vu et al. (2019) observed a significant negative impact of firm age on the profitability of small firms listed in Vietnam, Ilaboya and Ohiokha (2016) inferred that older firms listed on the Nigerian Stock Exchange perform better than younger firms. Likewise, different results were also seen for firm size's impact on profitability. Alarussi and Alhaderi (2018) asserted that firm size has a positive significant effect on the profitability of Malaysian listed companies, but Lazar (2016) showed that firm size negatively affects firm profitability, which might be due to larger firms being prone to conflicts between management and shareholders (Pi & Timme, as cited in Lazar, 2016).

Regarding investments and competitiveness, the Philippines' economic performance falls behind its neighbors (Diokno, 2017). In the 2020 World Competitiveness Report of the International Institute for Management Development (IMD), the Philippines ranked 45th out of 63 economies, wherein it slipped six places in terms of economic performance, from 38th to 44th (Ibañez, 2020). Considering that the industrial and services sectors are amongst the Philippine economy's most vital sectors (Department of Trade and Industry Philippines, n.d.-b, n.d.-a), the Philippines can leverage these sectors to boost economic growth with its neighboring countries. However, empowering the industrial and services sectors to contribute significantly to the Philippines' economic progress involves addressing several constraints, including how firms belonging in these sectors can increase their profitability. In relation to this, the present study aims to perform a panel regression analysis about the impact of firm-specific factors, namely, capital structure, liquidity, sales growth, firm age, and firm size to the ROE of industrial and services firms listed in the Philippine Stock Exchange (PSE) years 2008-2019.

Although several studies have already investigated the relationship between firm-specific factors and profitability, few papers explore this topic in the context of Philippine companies. Hence, the

contribution of this research to the existing body of knowledge is the identified impacts of certain microeconomic factors on the profitability of Philippine companies. Also, given that a company's performance is among the most crucial research considerations in financial management (Shah, 2015), this study's results will serve as a reference for future researchers regarding the factors affecting firm profitability. It will also provide guidelines for firms under the Philippines' industrial and services sectors on suitable business strategies that managers must consider to attain their profitability goals.

2. HYPOTHESES

The following hypotheses about the impact of capital structure, liquidity, sales growth, firm size, and firm age on firms' ROE have been formulated and tested in the study using the panel regression model.

H1: Capital structure significantly affects the ROE of listed industrial and services firms in the Philippines.

H2: Liquidity significantly affects the ROE of listed industrial and services firms in the Philippines.

H3: Sales growth significantly affects the ROE of listed industrial and services firms in the Philippines.

H4: Firm age significantly affects the ROE of listed industrial and services firms in the Philippines.

H5: Firm size significantly affects the ROE of listed industrial and services firms in the Philippines.

Table 1. Details of Variables Used

Variables	Description
Return on Equity	Net income/Shareholder's equity
Capital Structure	Total debt/Total Shareholder's equity
Current Ratio	Current assets/Current Liabilities
Sales Growth	$\frac{\text{Net sales for the current period} - \text{Net sales for the prior period}}{\text{Net sales for the prior period}}$
Firm Size	Natural logarithm of Total Assets
Firm Age	Current year minus the year of incorporation

3. METHODOLOGY

This study used panel regression analysis to assess microeconomic factors' impact on the ROE of

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listed Philippine industrial and service firms years 2008-2019. ROE is the dependent variable used as a proxy for measuring the firms' performance, while

independent variables utilized to explain ROE are capital structure, liquidity, sales growth, firm age, and firm size.

Table 2. Descriptive Statistics

	Mean		Mdn		Min		Max		Std. Dev.	
	Ind	Serv	Ind	Serv	Ind	Serv	Ind	Serv	Ind	Serv
ROE	-0.0011	0.0011	0.0017	0.0022	-0.9416	-0.17	0.0573	0.09385	0.0429	0.01474
CS	2.22	1.857	0.8715	0.8284	-34.06	-85.14	447.4	79.41	20.58	7.742
CURRENT	2.211	3.656	1.495	1.217	0.02524	0.122	18.17	140.2	2.372	13.97
GROWTH	0.8372	0.1134	0.07132	0.06367	-0.976	-1	327.4	5.004	15.06	0.4933
AGE	43.59	50.16	43	49.5	5	9	101	95	26.38	24.07
SIZE	15.99	15.64	16.05	15.31	10.53	10.91	19.83	20.03	2.04	1.828

Table 1 shows the details about the variables used together with their descriptions. The financial statements and company profiles of industrial and services companies listed in the PSE were gathered for the computation of financial ratios and firm size and age utilized in this study. The primary data sources are Thomson Reuters Eikon and PSE Electronic Disclosure Generation Technology (PSE Edge) database. The sampling method used is purposive sampling, such that the specific criteria applied consist of 1) industrial and services firms listed in the PSE for the years 2008-2019 and 2) industrial and services firms that published complete financial statements for the years 2008-2019. The final sample comprises 75 firms, 43 of which are industrial firms and 32 are services firms. With 11 years of time period after computing sales growth and 75 unbalanced cross-sectional units after computing the natural logarithm of ROE, the total number of observations is 672. Gretl software was used to conduct the analysis process in this research.

The researchers evaluated three-panel regression estimators (pooled OLS, random effects, and fixed effects) and determined which three best suit the model. Panel model diagnostics using the Breusch-Pagan test and Hausman test were done to determine which regression estimation method will best fit the model. The Breusch-Pagan test was utilized to test whether pooled OLS or random-effects estimation is suitable, while the Hausman test was used to identify the appropriateness of employing either the random-effects model or the fixed-effects model.

4. RESULTS AND DISCUSSION

The findings of the study were presented in table forms as shown in the following subsections.

4.1 Descriptive Statistics

The descriptive statistics in Table 2 show that most industrial companies registered loss (approximately negative. 11% of the total equity), and most services firms indicated limited earnings (about 0.11% of the total equity) based on the average return on total equity. The capital structure shows the firms' high dependence on external financing availability as the borrowed resources represent an average of approximately 222% and 186% of the industrial and services firms' equity, respectively. Disregarding extreme values, most of them are highly liquid, with current assets exceeding current liabilities over two times for industrial firms and over three times for services firms. While most industrial firms showed a rapid growth (83.72%), most services firms had limited growth (11.34%) over time. Most industrial and services firms are relatively old in the industry, with about 44 and 50 years of existence, respectively, from their incorporation date. The average size of industrial (15.99) and services (15.64) firms reveal that most companies are medium-sized, comparing to the minimum and maximum values registered.

Table 3. Variance Inflation Factors

	VIF
CS	1.002
CURRENT	1.017
GROWTH	1.004
SIZE	1.043
AGE	1.044

Table 4. Breusch-Pagan Test Result

Breusch-Pagan test statistic:
LM = 365.522 with p-value = prob (chi-square (1) > 365.522) = 1.76716e-081

Table 5. Hausman Test Result

Hausman test statistic:

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$H = 23.1522$ with p -value = $\text{prob}(\text{chi-square}(5) > 23.1522) = 0.000315685$

Table 6. Fixed Effects Model with Robust (HAC) standard errors

	coefficient	std. error	t-ratio	p-value
const	-3.50386	1.94991	-1.797	0.0764*
CS	-0.0326718	0.006523	-5.009	3.61E-06***
CURRENT	-0.0307810	0.003766	-8.172	6.12E-12***
GROWTH	0.002325	0.000264	8.804	3.89E-13***
AGE	-0.0469655	0.026498	-1.772	0.0804*
SIZE	-0.0218764	0.169337	-0.1292	0.8976
Mean dependent var	-6.223717	S.D. dependent var		1.157087
Sum squared resid	395.2198	S.E. of regression		0.817069
LSDV R-squared	0.560069	Within R-squared		0.112346
Log-likelihood	-775.1724	Akaike criterion		1710.345
Schwarz criterion	2071.166	Hannan-Quinn		1850.086
rho	0.194279	Durbin-Watson		1.283617

Note. * $p < .1$. ** $p < .05$. *** $p < .01$. Number of companies = 75, minimum time-series length = 2, maximum time-series length = 11, total N = 672. The dependent variable is the natural logarithm of ROE (LROE).

4.2 Panel Model Diagnostics

The researchers performed diagnostic tests on the data gathered before proceeding with the regression analysis. A test of multicollinearity was conducted wherein variance inflation factor (VIF) of the variables was analyzed. For multiple regression to be applicable, the relationship between the independent variables should not be substantial. From the findings in Table 3, all the variables have VIF values less than 10. Hence, multicollinearity does not exist among the independent variables.

The next diagnostic test was the Breusch-Pagan test to determine whether it is appropriate to employ a pooled OLS model or a random-effects model. The Lagrange Multiplier (LM) value in Table 4 shows that a pooled OLS model is not adequate to explain the data, $\chi^2(1, N = 672) = 365.522, p < .1$. Hence, a Hausman test has been conducted to know the applicability of using a random-effects model or a fixed-effects model. The Hausman value in Table 5 shows that a fixed-effects model is suitable for the regression analysis, $\chi^2(5, N = 672) = 23.1522, p < .1$.

4.3 Regression Analysis

To test the relationship between the microeconomic factors and firm performance, this research used the following model:

$$\text{LROE}_{(i,t)} = \alpha_1 + \beta_1 \text{CS}_{(i,t)} + \beta_2 \text{CURRENT}_{(i,t)} + \beta_3 \text{GROWTH}_{(i,t)} + \beta_4 \text{SIZE}_{(i,t)} + \beta_5 \text{AGE}_{(i,t)} + \varepsilon_{i,t}$$

where LROE is the natural logarithm of ROE; CS is capital structure measured by debt-to-equity ratio; CURRENT is liquidity measured by current ratio; GROWTH is sales growth; SIZE is firm size; AGE is firm age; i is the company selected; t is time series; β is the beta coefficient; α is the unobserved time-invariant individual effect; ε is the error term.

Table 6 reports the regression results. T-statistics are written based on Arellano's (1987) correction for heteroscedasticity and serial correlation. The within an R square of 0.112 means that 11.2% of the variability in LROE within company units has been explained by the independent variables chosen in this model. The remaining 88.8% is unexplained and is due to other factors not included in the model.

The constant is a significant term in the regression model, $\beta = -3.50, t(74) = -1.80, p < .1$. This shows that when a firm is not yet incorporated and has a zero capital structure, current ratio, and sales growth, ROE would be 3.01%.

Capital structure has a significant statistical effect on ROE, $\beta = -0.03, t(74) = -5.01, p < .01$. Hence, the first hypothesis is accepted. On average, the firm's profitability decreases by 3.27% for every one-unit increase in the debt-to-equity ratio, ceteris paribus. The negative relationship between capital structure and profitability is consistent with the findings in the studies by Nguyen and Nguyen (2020), Hoang et al. (2019), Le and Phan (2017), Ramadan and Ramadan (2015), and Hamid et al. (2015). It is also in line with the

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pecking order theory, which suggests that profitable companies primarily use their earnings to finance their projects instead of using external funding sources (Ramadan & Ramadan, 2015). Typically, in developing financial markets, accessing resources through equity is uncommon; hence, the most accessible external financing is through borrowings (Vätavu, 2015).

Current ratio has a significant statistical effect on the ROE of firms, $\beta = -0.03$, $t(74) = -8.17$, $p < .01$. Hence, the second hypothesis is accepted. For every one-unit increase in the current ratio, firm performance decreases by 3.08% on the average, *ceteris paribus*. Li et al. (2020), Haykir and Celik (2018), and Pervan et al. (2017) have shown the same inverse relationship between liquidity and firm performance. This is in accordance with the trade-off theory, which emphasizes that firms adopt an optimal liquidity level to balance marginal costs and benefits of holding cash. Cash holdings incur low yield, so firms with a very high liquidity level lose the opportunity to obtain an advantage and gain profit (Ismail, 2016).

Sales growth has a significant statistical effect on ROE, $\beta = 0.002$, $t(74) = 8.80$, $p < .01$. Hence, the third hypothesis is accepted. On average, the firm's profitability increases by 0.23% for every one-unit increase in sales growth, *ceteris paribus*. Dioha et al. (2018), Lazar (2016), and Odalo et al. (2016) were able to show a similar relationship between sales growth and firm performance. This is in accordance with the theory of firm growth, which suggests that "causes of the growth of a firm can be both external and internal to the firm and is based on the premise that firms have no determinant long run or optimum size, but only a constraint on current period growth rates" (as cited in Odalo et al., 2016, p. 446).

Firm age has a significant statistical effect on ROE, $\beta = -0.05$, $t(74) = -1.77$, $p < .1$. Hence, the fourth hypothesis is accepted. A one-unit increase in firm age is expected to decrease ROE by 4.70%, *ceteris paribus*. This observed negative relationship is similar to the results in the studies by Yameen et al. (2019), Vu et al. (2019), and Lazar (2016) and agrees with the theory of structural inertia, which posits that performance decreases with age as firms become rigid and have trouble adjusting to the rapidly evolving business environment under which they operate (Ilaboya & Ohiokha, 2016). They may have sought a culture in which risks, major changes

in the organization, disputes with staff, etc., are avoided (Pervan et al., 2017).

Firm size does not have a significant statistical effect on profitability, $\beta = -.02$, $t(74) = -0.13$, $p = .898$. Hence, the fifth hypothesis cannot be accepted as there is insufficient evidence to show that firm size significantly affects the profitability of listed industrial and services firms in the Philippines.

5. CONCLUSION

This study aims to determine the relationship of capital structure, liquidity, sales growth, firm size, and firm age to the profitability, measured by ROE, of listed industrial and services firms in the Philippines. A panel regression analysis was done to determine the impact of these microeconomic factors on firms' ROE. The analysis results showed that capital structure, liquidity, sales growth, and firm age have a significant statistical effect on ROE. While capital structure, liquidity, and firm age have a negative impact, sales growth positively impacts firm performance. Firm size, on the other hand, failed to predict ROE significantly. Therefore, capital structure, liquidity, sales growth, and firm age are the microeconomic factors significantly impacting the profitability of listed industrial and services firms in the Philippines.

6. RECOMMENDATIONS

Based on this study's findings, it is essential that the listed industrial and services firms in the Philippines maintain an appropriate capital structure, establish an efficient liquidity management system, increase revenue streams, and enhance innovation to cope with the rapidly changing market conditions and boost financial efficiency. Thus, some recommendations are provided to improve the profitability of companies' operations.

Capital structure negatively impacts firm profitability. Hence, corporate managers need to work hard to control the risks arising from short-term or long-term liabilities and use them strategically to stimulate growth and profitability. Companies should formulate an optimal capital structure to handle debt exposure and manage the risk posed by excessive debt.

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Sales growth has a positive effect on firm performance. Thus, firms need to look into opportunities to increase their sales. As the Philippine government continues developing and implementing programs to accelerate the country's digital transformation (Department of Information and Communications Technology, 2020), firms may invest in new technologies that can reduce costs, reach more customers, and maintain a competitive advantage.

Liquidity, measured by the current ratio, has a negative relationship with ROE. Therefore, firms must ensure that their current assets and current liabilities are maintained at an ideal level. Excess cash may be utilized to make their shares more attractive through buybacks or increasing dividends. It can also be used for capital investment in existing facilities and equipment.

Further, it was found that firm age is negatively related to profitability, suggesting the deterioration of firm performance with age. Hence, Philippine companies in the industrial and services sectors cannot simply operate as they had in the past. With the persistence of the COVID-19 pandemic causing disruptions in the economy, business innovation has been more critical than ever (Am et al., 2020). Firms should resist bureaucracy and launch measures to deal with the evolving market conditions and stabilize performance.

As the data for the ongoing pandemic becomes available, future studies may examine the overall profitability of Philippine industrial and services companies before and during the COVID-19 outbreak to derive inferences that could be compared and highlighted. Moreover, to generate conclusions that will consider the whole Philippine economy and help policymakers understand how these firms could overcome challenges in increasing their profitability, a more comprehensive set of explanatory variables or a combination of macroeconomic and microeconomic factors may be considered.

7. REFERENCES

Alarussi, A. S., & Alhaderi, S. M. (2018). Factors affecting profitability in Malaysia. *Journal of Economic Studies*, 45 (3), 442–458.
<https://doi.org/10.1108/JES-05-2017-0124>

Am, J. B., Jorge, F., Furstenthal, L., & Roth, E. (2020, June 17). *Innovation in a crisis: Why it is more critical than ever* | McKinsey.
<https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/innovation-in-a-crisis-why-it-is-more-critical-than-ever>

Arellano, M. (1987). Computing Robust Standard Errors for Within-groups Estimators. *Oxford Bulletin of Economics and Statistics*, 49 (4), 431–434.

Department of Information and Communications Technology. (2020, May 20). DICT backs NEDA in promoting the PH digital economy. *DICT*.
<https://dict.gov.ph/dict-backs-neda-in-promoting-the-ph-digital-economy/>

Department of Trade and Industry Philippines. (n.d.-a). Manufacturing. *Securing The Future of Philippine Industries*. Retrieved August 10, 2020, from
<http://industry.gov.ph/category/manufacturing/>

Department of Trade and Industry Philippines. (n.d.-b). Services. *Securing The Future of Philippine Industries*. Retrieved August 10, 2020, from <http://industry.gov.ph/category/services/>

Dioha, C., Mohammed, N. A., & Okpanachi, J. (2018). Effect of firm characteristics on profitability of listed consumer goods companies in Nigeria. *Journal of Accounting, Finance and Auditing Studies*, 4 (2), 14–31.

Diokno, B. (2017, May 24). *The Philippines: Catching Up With Other ASEAN-5 Countries*.
<https://www.dbm.gov.ph/index.php/secretary-s-corner/press-releases/list-of-press-releases/201-the-philippines-catching-up-with-other-asean-5-countries-the-philippines-catching-up-with-other-asean-5-countries>

Donthu, N., & Gustafsson, A. (2020). Effects of COVID-19 on business and research. *Journal of Business Research*, 117, 284–289.
<https://doi.org/10.1016/j.jbusres.2020.06.008>

Durrah, O., Rahman, A. A. A., Jamil, S. A., & Ghafeer, N. A. (2016). Exploring the Relationship between Liquidity Ratios and Indicators of Financial Performance: An Analytical Study on

2021 ASEAN UNIVERSITY NETWORK BUSINESS AND ECONOMICS VIRTUAL CONFERENCE

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Conference theme: "Enabling the Transformation of
Resilient Business Environment and Innovation Ecosystem in the ASEAN"

Food Industrial Companies Listed in Amman
Bursa. *International Journal of Economics and
Financial Issues*, 6(2), 435–441.

Hamid, M. A., Abdullah, A., & Kamaruzzaman, N.
A. (2015). Capital Structure and Profitability in
Family and Non-Family Firms: Malaysian
Evidence. *Procedia Economics and Finance*, 31, 44–
55. [https://doi.org/10.1016/S2212-5671\(15\)01130-2](https://doi.org/10.1016/S2212-5671(15)01130-2)

Haykir, O., & Celik, M. S. (2018). The Effect of Age
on Firm's Performance: Evidence From Family-
Owned Companies. *Ömer Halisdemir Üniversitesi
İktisadi ve İdari Bilimler Fakültesi Dergisi*, 11(2),
129–137. <https://doi.org/10.25287/ohuiibf.403257>

Hoang, T. V. H., Dang, N. H., Tran, M. D., Vu, T. T.
V., & Pham, Q. T. (2019). Determinants Influencing
Financial Performance of Listed Firms: Quantile
Regression Approach. *Asian Economic and
Financial Review*, 9(1), 78–90.

Hongli, J., Ajorsu, E. S., & Bakpa, E. K. (2019). The
Effect of Liquidity and Financial Leverage on Firm
Performance: Evidence from Listed Manufacturing
Firms on The Ghana Stock Exchange. *Research
Journal of Finance and Accounting*, 10(8), 91–100.

Ibañez, J. (2020, June 16). *PHL competitiveness
still lags in Asia* [Online News]. BusinessWorld.
[https://www.bworldonline.com/phl-competitiveness-
still-lags-in-asia/](https://www.bworldonline.com/phl-competitiveness-still-lags-in-asia/)

Ilaboya, Ofuan, J., & Ohiokha, Izien. F. (2016).
Firm Age, Size and Profitability Dynamics: A Test
of Learning by Doing and Structural Inertia
Hypotheses. *Business and Management Research*,
5(1), 29–39. <https://doi.org/10.5430/bmr.v5n1p29>

Ismail, R. (2016). Impact of Liquidity Management
on Profitability of Pakistani Firms: A Case of KSE-
100 Index. *International Journal of Innovation and
Applied Studies*, 14(2), 304–314.

Kijewska, A. (2016). Determinants of the return on
equity ratio (ROE) on the example of companies
from metallurgy and mining sector in Poland.
Metallurgija, 55(2), 285–288.

Lazar, S. (2016). Determinants Of Firm
Performance: Evidence From Romanian Listed
Companies. *Review of Economic and Business
Studies*, 17, 53–69.

Le, T. P. V., & Phan, T. B. N. (2017). Capital
structure and firm performance: Empirical
evidence from a small transition country. *Research
in International Business and Finance*, 42, 710–
726. <https://doi.org/10.1016/j.ribaf.2017.07.012>

Li, K., Musah, M., Kong, Y., Adjei Mensah, I.,
Antwi, S. K., Bawuah, J., Donkor, M., Coffie, C. P.
K., & Andrew Osei, A. (2020). Liquidity and Firms'
Financial Performance Nexus: Panel Evidence
From Non-Financial Firms Listed on the Ghana
Stock Exchange. *SAGE Open*, 10(3),
2158244020950363.
<https://doi.org/10.1177/2158244020950363>

Nguyen, T. N. L., & Nguyen, V. C. (2020). The
Determinants of Profitability in Listed Enterprises:
A Study from Vietnamese Stock Exchange. *The
Journal of Asian Finance, Economics and Business*,
7(1), 47–58.
<https://doi.org/10.13106/jafeb.2020.vol7.no1.47>

Odalo, S. K., Njuguna, A. G., & Achoki, G. (2016).
Relating Sales Growth and Financial Performance
in Agricultural Firms Listed In the Nairobi
Securities Exchange in Kenya. *International
Journal of Economics, Commerce and Management*,
4(7), 443–454.

Pervan, M., Pervan, I., & Ćurak, M. (2017). The
Influence of Age on Firm Performance: Evidence
from the Croatian Food Industry. *Journal of
Eastern Europe Research in Business and
Economics*, 2017, 1–9.
<https://doi.org/10.5171/2017.618681>

Pervan, M., Pervan, I., & Ćurak, M. (2019).
Determinants of firm profitability in the Croatian
manufacturing industry: Evidence from dynamic
panel analysis. *Economic Research - Ekonomika
Istraživanja*, 32(1), 968–981.
<https://doi.org/10.1080/1331677X.2019.1583587>

Ramadan, Z., & Ramadan, I. (2015). Capital
Structure and Firm's Performance of Jordanian
Manufacturing Sector. *International Journal of
Economics and Finance*, 7(6), p279.
<https://doi.org/10.5539/ijef.v7n6p279>

Shah, S. A. M. (2015). Financial Management
Performance Effect on Organization Profitability.
*International Journal of Research in Engineering,
Social Sciences*, 5(4), 55–64.

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Resilient Business Environment and Innovation Ecosystem in the ASEAN"

Vătavu, S. (2015). Determinants of Return on Assets in Romania: A Principal Component Analysis. *Timisoara Journal of Economics and Business*, 8 (1s), 32–47.

Vu, T.-H., Nguyen, V.-D., Ho, M.-T., & Vuong, Q.-H. (2019). Determinants of Vietnamese Listed Firm Performance: Competition, Wage, CEO, Firm Size, Age, and International Trade. *Journal of Risk and Financial Management*, 12 (2), 1–19.

Yameen, M., Farhan, N. H. S., & Tabash, M. I. (2019). The Impact of Liquidity on Firms' Performance: Empirical Investigation from Indian Pharmaceutical Companies | Academic Journal of Interdisciplinary Studies. *Academic Journal of Interdisciplinary Studies*, 8 (3), 212–220.

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Value at Risk: Crude Oil Price during the Covid-19 Pandemic

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Abstract: Since the end of 2019, world economic conditions have experienced a difficult time due to the determination of the Covid-19 corona virus outbreak as a pandemic by the World Health Organization (WHO). One of the sectors that has felt the direct impact of this pandemic is the commodity sector, one of which is the crude oil commodity. The world crude oil price has decreased to reach a negative figure in the middle of Semester 1 2020, so that the level of uncertainty over the world crude oil price is relatively high due to fluctuations in the level of the economy. This study aims to measure the minimum level of risk posed by world crude oil prices through the Value at Risk (VaR) approach by applying the volatility rate modeling and the average Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model. The results of the study found that the AR (1)-GARCH (1,1) model is the best model for measuring the level of volatility and the average world crude oil price which is used as a measure of the minimum risk level for the VaR model. Furthermore, from the calculation results, the VaR value obtained with a time period of 15 days and a confidence level of 95% is 0.039108 or 3.91%. This means, with the level of uncertainty over world economic conditions, the world crude oil price has the potential to decline by a maximum of 3.91%.

Key Words: Pandemic, Covid-19, GARCH Model, Value at Risk

1. INTRODUCTION

The global economy is currently facing its worst condition since the Global Financial Crisis (GFC) in 2008. It is due to the spread of the Covid-19 virus, designated as a Pandemic by WHO in early 2020. The impact of the spread of this Pandemic, especially for the economy, is undoubtedly felt by the entire world economy. Ayittey et al. (2020), in their empirical research, reveals world economic activities such as international trade and global supply chains. Furthermore, the Pandemic has suppressed the

rate of return on investment and forced multinational businesses to make difficult decisions due to high levels of uncertainty. At the microeconomic level, a pandemic causes a decrease in public consumption, which worries the market.

One of the markets that feel the impact of the current Pandemic is the commodity market, especially the crude oil commodity. The production of crude oil requires high costs, so the ongoing production process cannot be immediately stopped because of the decreasing market demand for crude oil. This decreasing demand has resulted in a high level of uncertainty in the world crude oil price. In

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the first semester of 2020, world crude oil prices experienced their worst condition, reaching negative prices for the first time. Some analysts argue that the decline in prices may be due to investor concerns regarding the low demand for crude oil. Moreover, almost all the world's governments implement lockdown policies in various areas affected by the coronavirus, so that it causes economic activity essentially stalled.

Drachal (2016) stated that the macroeconomic impact on world oil prices' volatility is a crucial factor for importing and exporting countries. Therefore, it is necessary to measure the level of risk from the volatility of world crude oil prices. One of them is by using the Value at Risk (VaR) method. The level of risk is defined as the risk threshold value of the rate of return of a portfolio in a certain period and level of confidence. In this VaR measurement, the volatility level of time-series data becomes a component that needs to be considered for its accuracy so that the VaR value will also be more accurate. One of the models used to model the volatility of time-series data is the Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model (Tsay, 2014).

Measuring the level of VaR risk by applying the GARCH model has been carried out, such as Sitorus (2018), which examines the comparison of risk levels in state-owned bank assets. The results of his research found that the risk level of state-owned banks is almost identical, namely 3%, but Bank BTN has the highest level of risk among other state-owned banks. Furthermore, Mutya (2019) applies the ARMA-GARCH model to determine the VaR risk level of a stock price portfolio of five companies listed on the Indonesia Stock Exchange. The results of his research found that Bank BNI has the highest level of risk among all assets in the portfolio.

Therefore, this study aims to measure the minimum level of risk in world crude oil prices through the Value at Risk approach and apply the volatility rate model of the GARCH model.

2. METHODOLOGY

The data in this study used world crude oil price data from December 2019 to May 2020. The period of this study was determined based on the beginning of the spread of the coronavirus outbreak until mid-2020, when the world crude oil price touched a negative number. Before measuring the level of risk using the VaR approach, the volatility

of world crude oil prices, which is time-series data, needs to be modeled first through the application of the GARCH model so that the variance to be used in the VaR approach is accurate. The stages of GARCH volatility modeling are as follows.

2.1. Stationary Data

GARCH modeling (p, q) requires that the time series data be stationary or that the data's mean and variance fluctuate around zero. Statistical testing of static data can be done by looking at the data visually through a graph plot or through the Augmented Dickey-Fuller (ADF) test, which was first introduced by Dickey and Fuller (1979). The mathematical formula of the ADF test is as follows.

$$DF_t = \frac{\gamma_i}{\sqrt{se_{\gamma_i}}} \quad (1)$$

With the hypothesis that is built up:

H0: $DF_t > 2.57$ = non-stationary data

H0: $DF_t < 2.57$ = stationary data

Next, Tsay (2005) tested the data stationary by calculating the value of the autocorrelation function and the partial autocorrelation function, where if the movement of data at a certain lag level slowly decreases, the time series data is non-stationary. Ambya et al. (2020) argue that, in general, financial data is financial time series data that is not stationary for the mean and variance, so that the data needs to be transformed so that it is stationary by using a differentiation approach.

If the data is not stationary, then the next treatment is to change it into a stationary form by applying the method introduced by Granger and Joyeux (1980), namely differentiation. This differentiation process aims to stabilize the average and volatility of time series data. Mathematically, the differentiation process can be formulated as follows:

$$a(B) = (1-B)^d \quad (2)$$

2.2. The ARCH-Effect Test

Engle (1982) argued that there is a possibility of heteroscedasticity problems in modeling financial time series data is very large, so that parameter estimates to predict the model to be less accurate. Identification of whether an ARCH effect can be done by testing the Lagrange Multiplier (LM) test (Lee and King, 1993). If the LM



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test probability value is significant in any order (<0.001), it can be concluded that there is heteroscedasticity, so that it requires a longer lag process (Ahmad et al., 2016). Therefore, GARCH modeling can be done by squaring the residual value in historical data to estimate variance (Tsay, 2005).

2.3. AR (p) and GARCH (p, q) Modeling

The mean AR(p) model is defined as the p-order lag, and the conditional variances and their residual squares are defined as the p and q orders. The following is a statistical formula for the GARCH model.

$$Oil_t = \varphi + \sum_{i=1}^p \phi_i Oil_{ti} + \varepsilon_t \quad (3)$$

$$\sigma_t^2 = \alpha + \sum_{i=1}^q \beta_i \varepsilon_{ti}^2 + \sum_{j=1}^p \delta_j \sigma_{tj}^2 \quad (4)$$

If the Mean Square Error (MSE) and Root Mean Square Error (RMSE) are relatively small, then the model can be assumed to have a good level of forecasting.

2.4. Value at Risk (VaR)

Sunaryo (2009) explained that measuring the level of risk using VaR is defined as the estimated maximum loss faced by a portfolio investment in a certain period and a certain level of confidence. In other words, the investor could incur a loss on his investment below the estimated VaR value.

The VaR value for a certain period and a certain level of confidence can be calculated using the following equation (Tsay, 2002).

$$VaR_{(1-\alpha)}(t) = W_0 * (\mu - R) \sqrt{t} \quad (5)$$

W_0 is the initial investment value of the asset or portfolio, R is the α quantile value of the return distribution, σ is the value of volatility, and t is the time.

3. RESULTS AND DISCUSSIONS

3.1. Data Description

The data in this study are world crude oil prices (COPs) from the beginning of the outbreak of the Covid-19 virus in December 2019 to mid-2020,

with a total of 152 observational data to test their impact on volatility and risk on world crude oil prices.

The initial stage of the analysis is to detect whether the time series data of world crude oil prices are stationary or not. This test can be done by looking at the distribution of data on the graph. Figure 1 shows that over the first 50 days of observation, COPs were relatively stable at a \$60 per barrel price. Since the coronavirus Pandemic in early 2020, COPs fell so drastically that they touched a price of around \$15 per barrel and even touched a negative price for the first time on the 101st day of observation. However, statistically, the price on the 101st day is considered the same as the previous day's closing price.

Furthermore, the market reacted positively to the phenomenon so that COPs rose significantly a few days later. However, these price increases did not last long, as the Pandemic caused COPs to fall freely back to nearly \$0 per barrel on the 125th day of observation. Then, the market returned to a positive trend because the world economic order has been rebuilt. It is shown in the increasing trend movement until the end of the observation data up to \$40 per barrel.

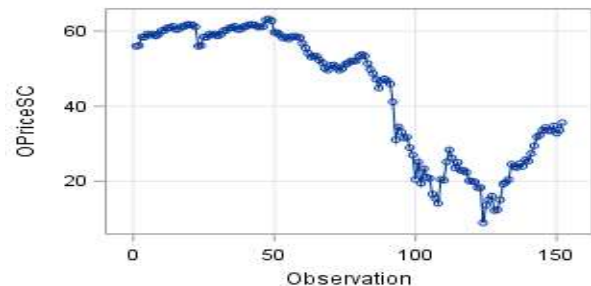


Fig. 1. Data distribution of COPs

Figure 1 above also shows that the time series data is not stationary due to unstable volatility. The statistical proof, the ADF test was carried out, as shown in Table 1 below.

Table 1. ADF Test

Type	Lags	Rho	Pr <Rho	Tau	Pr <Tau	F	Pr > F
Zero Mean	3	-0.65	0.53	-1.13	0.23		
Single Mean	3	-1.56	0.82	-0.96	0.76	0.81	0.86
Trend	3	-4.0	0.88	-1.13	0.91	0.76	0.98



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The results in Table 1 show that the probability value of the p-value on lag 3 zero mean is not significant (> 0.05), so these results confirm that the mean and variance of time series data are not stationary.

3.2. Differencing

After confirming that the COPs data are not stationary, the next step is to convert them to stationary by differentiating them at one or more lags. In this study, differential one testing will be carried out. The graphic results in Figure 2 show that the period data is stationary. Figure 2a shows the data distribution after differencing one, where the mean and variance values are around zero, which identifies the period data as stationary. The ACF and PACF charts in Figures 2b and 2c also identify that the time data is stationary because the ACF graph moves fast after lag one and is in an area around zero, while the PACF graph all data is in the zero areas. Meanwhile, Figure 2d also shows that the period data has been normally distributed.

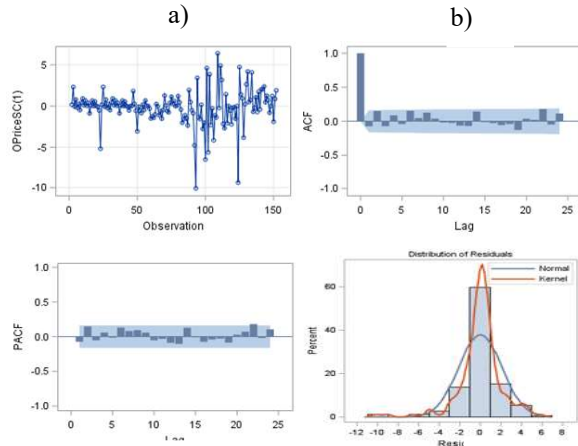


Fig. 2. a. Dis c) data sets, b. AC d) h, c. PACF charts and a graph of Normal Distribution after Differencing 1

Furthermore, the ADF test was again carried out to confirm statistically that the data for that period had met the stationary data requirements. Table 2 shows the p-value of the ADF test after referencing one to less than 0.0001, so it can be concluded that the period data is stationary. After fulfilling the stationary data requirements, the mean and variance values of the COPs period data can be modeled.

Table 2. Augmented Unit-Root (ADF) Test (d = 1)

Type	Lags	Rho	Pr <Rho	Tau	Pr <Tau	F	Pr> F
Zero Mean	3	-106.04	0.01	-5.47	<.01		
Single Mean	3	-110	0.01	-5.53	<.01	15:27	0.01
Trend	3	-111	0.01	-5.53	<.01	15:33	0.01

3.3. ARCH and GARCH Model

Problems that often exist in the data period are a problem of heteroscedasticity, so it is necessary to check statistically whether the model to be built contains a heteroscedastic effect (ARCH effect). Testing the ARCH effect can be done using the ARCH-LM test, presented in Table 3 below.

Table 3. Test ARCH-LM OLS Residuals

Order	Q	Pr> Q	LM	Pr> LM
1	101.8220	<.0001	96.7166	<.0001
2	179.9966	<.0001	98.3812	<.0001
3	226.4789	<.0001	99.9454	<.0001
4	260.5028	<.0001	100.6403	<.0001
5	278.6486	<.0001	101.1346	<.0001
6	288.6359	<.0001	101.3129	<.0001
7	290.7221	<.0001	101.9782	<.0001
8	290.9554	<.0001	101.9849	<.0001
9	291.8320	<.0001	102.8089	<.0001
10	295.0178	<.0001	102.9625	<.0001
11	300.6530	<.0001	103.0377	<.0001
12	307.3686	<.0001	103.0938	<.0001

Table 3 shows that the model carries the ARCH effect because the Portmanteau Q and LM tests have p-values less than 0.0001. The results of this test mean that there is an ARCH effect on the model. Therefore, it is necessary to generalize the model so that modeling the mean and variance of the data can be more accurate over time. The modeling can be done by applying the AR (p) model for modeling the mean Value and GARCH (p, q) for modeling the variance and the squares of the residue. In this study, the AR (1) -GARCH (1,1) model test was carried out, where the test results of this model are presented in the following table.

Table 4. Parameter Estimation Model AR (1) - GARCH (1,1)

Variable	D	Estimate	Std. Error	t-Value	App Pr> t
Intrcpt.	1	55.80	5.44	10:24	<.01

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AR1	1	-0.96	0.01	-107	<.0
					1
ARCH0	1	0.31	0.10	3.17	0.0
					1
ARCH1	1	0.31	0.07	4:00	<.0
					1
GARCH	1	0.66	0.07	8.75	<.0
1					1

Table 5. Estimation of GARCH

SSE	747.0	Observations	152
MSE	4.91	Uncond Var	14.58
Log-Likelihood	-305.58	Total R-Square	0.98
SBC	636.28	AIC	621.16
MAE	1.39	AICC	621.57
MAPE	5.61	HQC	627.30
		Normality Test	452.18
		Pr> ChiSq	<.0001

In Table 4, the AR (1)-GARCH (1,1) model has met the modeling rules because the probability value of each variable is less than 0.05. Mathematically, the model can be presented as follows.

AR (1) for Mean value model:

$$Oil_t = 55.8089 - 0.9680 Oil_{t-1} + \epsilon_t$$

GARCH (1,1) for variance model:

$$\sigma_t^2 = 0.3199 + 0.3105\epsilon_{t-1}^2 + 0.6676\sigma_{t-1}^2$$

Table 5 shows a description of the model that has been statistically constructed. The MSE value is relatively small, namely 4.91458, which means that the mean error is relatively small. Then the RMSE value is 2.21688, which is also very small compared to the Unconditional Variance value. The R-squared value also shows a significant result of 98.27%. The level of model persistence can also be measured by summing the parameter coefficients of ARCH and GARCH, respectively (Table 4). The sum is close to number 1, which means that modeling can better predict future data.

3.4. Measuring the Value at Risk (VaR)

Model AR (1) -GARCH (1,1) will then be the basis for calculating VaR, where AR (1) is the basis for calculating the average Value of COPs and GARCH (1,1) as the determining model. Volatility value in VaR. From COPs data (Attachment 1), it is

obtained $Oil_{152} = 34.3795$; so that the mean Value of COPs at $t = 153$ is as follows:

$$\begin{aligned} Oil_{153} &= 55.8089 - 0.9680 Oil_{t-1} \\ Oil_{153} &= 55.8089 - 0.9680 (34.3795) + 14.5842314 \\ Oil_{153} &= 37.114 \end{aligned}$$

While the volatility values are as follows:

$$\begin{aligned} \sigma_{153}^2 &= 0.3199 + 0.31(34.37) + 0.66(14.58) \\ \sigma_{153}^2 &= 509.31 \\ \sigma_{153} &= 22.56 \end{aligned}$$

With the confidence level $\alpha = 5\%$, the quantile value is 1.65 or + 1, so that the VaR value for the next 10 days is obtained:

$$\begin{aligned} VaR(95\%) (15) &= W_0 * (37,114 \cdot (1.65 (22.56)) \sqrt{15} \\ &= 0.039108 \end{aligned}$$

From the calculation, it is known that the VaR value for the next 15 days at the 95% confidence level is 0.039108 or 3.9108 percent. Thus, it can be interpreted that in the next 15 days, with the unstable world economy, it is calculated that the world crude oil price will have the potential to decline by a maximum of 3.9108%.

The finding confirmed what has been done by previous study (Hendrawaty, 2021), which brought into conclusion that the model shows the declining forecasting prices for crude oil prices.

4. CONCLUSION

The Pandemic has had an impact on the health of the world community and the economic system. Economic growth in several countries has decreased due to falling income levels due to layoffs or sluggish businesses. Likewise, most of the world's commodity prices, including crude oil prices (COPs), experienced a very drastic price increase and even touched negative numbers for the first time in history.

Thus, it is necessary to measure the maximum risk value (VaR) from the volatility of high and uncertain crude oil price movements. Through the AR (1)-GARCH(1,1) model approach, the calculation of VaR estimates for the next 15 days is obtained with a confidence level of 95%.

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With unstable world conditions and a high level of uncertainty during the second-third quarter of 2020, it can be concluded that the VaR value of 3.9108% can indicate that over the next 15 days, the COPs price will decrease by a maximum of 3.9108% with a 95% confidence.

5. ACKNOWLEDGMENTS

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6. REFERENCES

- Ahmad, N., Ahmed, R.R., Vveinhardt, J., dan Streimikiene, D. (2016). Empirical analysis of stock-returns and volatility: Evidence from Asian stock markets. *Technological and Economic Development of Economy*, 22(6), 808-829.
- Akhmadi, Y., Musthofa, I., Rika, H.M., dan Hanggraeni, D. (2019). Penilaian Value at Risk dengan pendekatan Extreme Value Theory dan Generalized Pareto Distribution studi kasus Bank BUMN di Indonesia pada periode tahun 2008-2018.
- Ambya, A., Gunarto, T., Hendrawaty, E., Kesumah, F.S.D., dan Wisnu, F.K. (2020). Future Natural Gas Price Forecasting Model dan Its Policy Implication. *International Journal of Energy Economics and Policy*, 10(5), 64-70.
- Ayittey, F.K., Ayittey, M.K., Chiwero, N.B., Kamasah, J.S., dan Dzuvoor, C. (2020). Economic Impacts of Wuhan 2019-nCov on China and the World. *Journal of Medical Virology*, 92, 473-475.
- Dickey, D. A., dan Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of American Statistical Association*, 74, 427-431.
- Drachal, K. (2016). Forecasting spot oil price in a dynamic model averaging framework – Have the determinants changed over time? *Energy Economics*, 60, 35-46.
- Engle, R. (1982). Autoregressive conditional heteroscedasticity with estimates of the variance of United Kingdom inflation. *Econometrica*, 50, 987-1007.
- Granger, C.W.J., dan Joyeux, Roselyne. (1980). An Introduction to Long-Memory Time Series Models and Fractional Differencing. *Journal of Time Series Analysis*, 1(1), 15-29.
- Hendrawaty, E., Azhar, R., Kesumah, F. S. D., Sembiring, S. I. O., & Metalia, M. (2021). Modelling and forecasting crude oil prices during covid-19 pandemic. *International Journal of Energy Economics and Policy*, 11(2), 149–154. <https://doi.org/10.32479/ijeep.10578>
- Lee, J. H. H., dan King, M. L. (1993). A locally most mean powerful based score for ARCH and GARCH regression disturbances. *Journal of Business and Economics Statistics*, 11, 17-27.
- Mutia, E., Rahmawaty, R., dan Afrianandra, C. (2018). Value at Risk of Sukuk Ijarah and Mudharabah in Indonesia. *Journal of Accounting Research, Organization, and Economics*, 1(1), 65-73.
- Sitorus, S. (2018). Investment decision making based on Value at Risk (VaR) analysis for stocks of state own bank in Indonesia. *Journal of Economics and Business*, 02(02), 128-141.
- Tsay, R.S. (2005). *Analysis of Financial Time Series*. Hoboken, New Jersey: John Wiley and Sons, Inc.
- Tsay, R. S. (2014). *Multivariate Time Series Analysis with R and Financial Applications* (D. J. Balding, N. A. Cressie, G. M. Fitzmaurice, H. Goldstein, I. M. Johnstone, G. Molenberghs, D. W. Scott, A. F. Smith, R. S. Tsay, & S. Weisberg (eds.)). John Wiley & Sons, Inc.

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An Industry Analysis of Stock Returns at the Philippine Stock Exchange during the COVID-19 Vaccine Rollout

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Abstract: The COVID-19 pandemic became a global health burden that severely affected individuals and businesses alike which highlighted the urgent need for an effective treatment. This led to the significance of vaccine and a vaccination program as possible solutions to the pandemic. In the Philippines, March 1, 2021 was the start of a government-led vaccination rollout intended for healthcare workers, while full-scale implementation is expected sometime during the year. Thus, this study is an event study which aims to determine any significant difference in stock returns of all 269 firms in six sectors of the Philippine Stock Exchange using an estimation window of 105 days and event window of (-5, 0) to (0, 5). Based on the results of t-test, there is a significant difference between the pre- and the post- cumulative average abnormal returns across all sectors when vaccine rollout is considered as the event. Specifically, all but the property sector showed a significant negative reaction five days after event date. This can be translated to investors' drop in confidence on the vaccination rollout implemented by the government as inequitable prioritization and distribution policies were reported. Due to uncertain impacts of the vaccination rollout, management of listed firms in various sectors are recommended to craft a more appropriate crisis management program in order to recover faster from any future adverse impact brought about by the pandemic. Recommendations to future researchers are also included.

Key Words: COVID-19; COVID-19 vaccine; stock returns; vaccine rollout

1. INTRODUCTION

COVID-19, which spread rapidly around the world within a month (Lin et al., 2020) and to which the global population had no prior immunity (McIntyre et al., 2021), was declared as a worldwide pandemic on March 11, 2020 by the World Health Organization (WHO). Also known as the novel coronavirus or severe acute respiratory syndrome

coronavirus 2 (SARS-CoV-2), COVID-19 became a global health burden that had infected millions of people and had resulted to considerable morbidity and mortality, impairment of physical well-being and social norms of daily living, and enforcement of various control measures which contributed to severe impacts in the global economy (Lin et al., 2020). Several studies such as those done by Baker et al. (2020), He et al. (2020), Heyden and Heyden

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(2021), Khan et al. (2020), Khantavit (2020), Ramelli and Wagner (2020), and Topcu and Gulal (2020) were able to note significant negative financial market reactions as a result of the COVID-19 pandemic declaration. For ASEAN-5 stock markets, Kamaludin et al. (2021) noted that the Philippines reacted a month or two later than other countries included in the analysis.

The pandemic's impact highlighted the importance of an effective treatment for COVID-19. However, due to the absence of drugs approved for COVID-19 prevention and treatment, COVID-19 vaccines received global attention (Li & Lu, 2020) as a potential solution to control the pandemic. Vaccine availability was listed as one of the issues outside of management control that will have the greatest impact on businesses in 2021, together with the pandemic itself, recession risk, shifting consumer buying behaviors, and global political instability (The Conference Board, 2021).

With the arrival and distribution of vaccines, Çakmaklı et al. (2021) used an economic-epidemiological framework to estimate short-run global economic costs of COVID-19 pandemic among 65 advanced economies (AEs) and emerging markets and developing economies (EMDEs), across 35 sectors and found that 49 percent of the costs are borne by AEs even if universal vaccination is achieved in their respective economies. On a sectoral level, each sectoral cost incurred by EMDEs are significantly larger than those incurred by AEs. The highest costs were found in sectors that had a decline in demand caused by the pandemic such as real estate and services, more particularly accommodation, food, and arts and entertainment.

COVID-19 daily infection was identified as a contributor, though minor, to the Philippine Stock Exchange index's (PSEi) significant fluctuations (Camba & Camba, 2020). Dumlao-Abadilla (DOH, 2021 March 26) reported that the PSEi gained for the third straight session and climbed past the 6,500 mark and closed at 6,581 on March 25, 2021 due to decline in new COVID-19 cases and investor's optimism on vaccine rollout. The said report also stated that except for financial, all PSE sectors gained, with holding firm, mining and oil, and property sectors as top gainers. In the Philippines, a mini scale of the vaccination program began on March 1, 2021 where frontline health workers were the targeted recipients (Department of Health

[DOH], 2021 March 2) and which was expected to be the basis of the full-scale implementation this May and June (DOH, 2021 March 13).

1.1 Literature Review

There had been some studies done at the start of the COVID-19 pandemic that focused on industry analysis. He et al. (2020) determined industry-specific impact of a COVID-19 lockdown and found that transportation, mining, electricity and heating, and environment industries are adversely affected by lockdown while manufacturing, information technology, education, and health-care industries were resilient.

Based on a secondary research methodology, Hoque et al. (2020) confirmed that China's tourism industry was significantly affected by COVID-19. An analysis of booking cancellations, workers pay cut and revenue loss confirmed that COVID-19 have significantly and adversely affected the Malaysian tourism industry, particularly the airline and hotel businesses (Foo et al., 2020). Using panel structural vector analysis and system dynamic modeling, Škare et al. (2021) estimated that it would take more than the average period of 10 months for the tourism industry worldwide to recover from the COVID-19 pandemic. Song et al. (2021) found that COVID-19 cases' weekly growth rate have a significant negative impact on returns of publicly traded U.S. restaurants.

A study of the Ghanaian insurance industry concluded that during the period March to June 2020, COVID-19 caused the industry a drop of 16.6% in profits and an estimated financial loss of GH ₵112 million (Babuna et al., 2020). Laing (2020) concluded that the COVID-19's short term impact on the mining industry is in terms of price decline of selected minerals during March to April 2020, while the study of Fu and Shen (2020) concluded that COVID-19 has a negative significant impact on the financial performance of energy companies.

1.2 Objective, Significance, And Framework

In terms of COVID-19 event studies, particular event used were declaration as pandemic, start of lockdown, and first death confirmation but to date, no research had focused on the start of a government-led vaccination rollout program as the

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event. In addition, most of the previous industry studies focused on countries other than the Philippines.

Thus, this study is an event study which aims to determine whether the COVID-19 vaccine rollout as an event had a significant impact on stock returns of the various sectors of the Philippine Stock Exchange. This study particularly benefits the management of listed firms in the Philippines with regards to determining investor confidence days before and after the March 1 mini vaccine rollout with the conduct of a t-test on the cumulative average abnormal returns (CAAR) per sector. This study applied the efficient market theory which states that an efficient market is where prices fully reflect all information and are therefore properly valued (Fama, 1960).

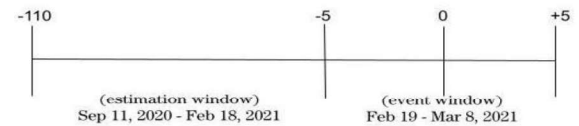
2. METHODOLOGY

The population of this study consists of 276 actively-traded companies in the Philippine Stock Exchange (PSE) during the event window, which were further classified into eight PSE sectors. Considering that ETF-equity and SME sectors have limited number of companies (one and six, respectively), the final sample size used was 269 firms in six sectors. Specifically, 27 (9.8%) firms each from financial, and mining and oil sectors; 45 (16.3%) firms from holding firms sector; 71 (25.7%) firms from industrial sector; 37 (13.4%) from property sector, and 62 (22.5%) from services sector.

This study used the event study methodology developed by Fama et al. (1969) which involves observing whether stock prices display abnormal returns days before and after the said event. This was used to assess the impact of the COVID-19 vaccine roll-out on changes in stock prices of companies listed in the Philippine Stock Exchange classified by sector. A t-test was then conducted to determine the statistical significance of the impact. Figure 1 shows the estimation and event windows used in this study. March 1, 2021 is the event day denoted as (0,0).

Figure 1

Estimation and Event Windows



This study used Microsoft® Excel for Mac version 16.46 (2021) for data analysis and computed CAAR using Equation 1 and t-test statistic using Equation 2.

$$CAAR_T = \frac{1}{N} \sum_{i=1}^N CAR_{i,T} \quad (1)$$

where: CAR_t = cumulative abnormal return for each company computed by adding the abnormal returns starting from event date ($t=0$) to day T

$$t = \frac{CAAR}{\frac{SD_{CAAR}}{\sqrt{N}}} \quad (2)$$

3. RESULTS AND DISCUSSION

Table 1.

Results of t-test

Event Window	PSE Sector					
	Financial	Holdin g	Indust rial	Minin g	Property	Servic es
0, +5	-	-4.47%	-4.35%	-5.96%	-	-3.46%
	2.54				1.11	
	%	(-	(-	(-	%	(-
		2.7470	3.7426	2.3282		2.2968
	(-)))	(-)
	3.494				.438	
	5)	***	***	**	0)	**

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	***							(.549 0)	1.0616)	2.1715)	2.8980)	(2.26 29)	(.8961)
0, +4	- 0.51 %	-2.54%	-1.64%		0.05 %					**	***	**	
	(- .4895)	(- 1.4991)	(- 2.4837)	-1.66%	(.040 4)	0.20%		-3, 0	1.06 %	-1.66%	-2.61%	-6.30%	3.28 %
				(.7367)	(.1265)			(.567 2)	(- 1.5255)	(- 4.1460)	(- 4.1808)	(1.87 61)	1.09%
			**							***	***	*	
0, +3	- 1.15 %	-2.05%	-0.66%		0.65 %	0.96%		-4, 0	2.08 %	-1.50%	-2.53%	-4.69%	2.94 %
	(- 1.325 7)	(- 1.3166)	(- 1.3346)	0.08%	(.520 6)	(1.129 4)		(.808 4)	(- 1.3359)	(- 3.6804)	(- 2.8705)	(1.57 85)	0.67%
				(.0423)						***	***		(.2815)
0, +2	- 0.90 %	-1.71%			0.56 %	0.11%		-5, 0	1.25 %	-1.38%	-3.68%	-5.24%	2.02 %
	(- 1.147 2)	(- 1.1083)	-0.31%	1.42%	(.424 1)	(1.287)		(.517 3)	(- 1.0408)	(- 5.0072)	(- 2.6554)	(.977 2)	-0.05%
			(.6767)	(.8692)						***	***		(.0228)
0, +1	- 0.30 %				2.55 %	0.90%							
	(- .3122)	0.30%	0.47%	2.15%	(1.76 45)	(1.055 8)							
		(.4840)	(.6960)	(1.009 5)	*								
0, 0	0.35 %	0.74%			3.40 %	1.03%							
	(.355 2)	(1.658 3)	0.22%	0.52%	(2.33 41)	(1.914 7)							
		*			**	*							
-1, 0	2.08 %	0.78%	0.46%	-0.72%	4.48 %	3.43%							
	(1.29 83)	(1.284 4)	(1.014 4)	(- .6748)	(2.79 15)	(1.807 9)							
					***	*							
-2, 0	0.81 %	-0.86%	-1.11%	-4.18%	3.87 %	1.84%							
		(-)	(-)	(-)									

Note. *** denotes significance at $\alpha = 1\%$, ** denotes significance at $\alpha = 5\%$, and * denotes significance at $\alpha = 10\%$

As shown in Table 1, the impact of the vaccine rollout on the stock return varies per sector. Financial, holding firms, and services sectors showed negative reaction only on the 5th day after the vaccination rollout. Industrial, and mining and oil sectors were adversely affected by the vaccine rollout two to five days before the event and also on the 5th day after. Of all the sectors, only property sector showed a positive reaction to the rollout one to two days before and on the rollout date itself. This means that there is a significant difference between the pre- and the post-abnormal returns which showed the impact of the vaccine rollout on abnormal returns across all sectors.

Specifically, all but the property sector showed significant negative reaction five days after event date. This can be translated to investors' drop in confidence on the mini vaccination rollout declared by the Philippine government due partly to the press release of the DOH and the National Task Force Against COVID-19 (NTF) which called on the public to strictly follow the government's vaccination

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prioritization guidelines following reports of vaccination of non-healthcare workers (DOH, 2021 March 25). According to Getz (2020), the factors for a successful vaccination program included public confidence and trust that vaccines are safe and effective, implementation of equitable prioritization and distribution policies, and clear and transparent information from government agencies and healthcare communities.

Two to five days before the event date, industrial and mining and oil sectors both showed significant negative differences in stock returns. This supports the findings of Laing (2020), Fu and Shen (2020), and partially supports He et al. (2020) when it comes to adverse impact of pandemic on financial performance of mining and industrial sectors. Meanwhile, the significant negative difference in industrial sector's stock returns contradicts He et al.'s findings that this sector is resilient during periods of COVID-19 pandemic. The negative results can be explained by the increasing focus of industrial sector on lowering costs and having sustainable production and environmentally-friendly offerings (The Conference Board, 2021) and the declining price of minerals in the mining and oil sector (Laing).

Considered as two of the most severely affected sectors during the pandemic, the property and services sectors showed positive differences on stock returns three days before until one day after the event date, all results being statistically significant for the property sector. These results are contrary to findings of previous studies (Çakmaklı et al., 2021; Foo et al., 2020; Hoque et al., 2020; Škare et al., 2021; and Song et al., 2021) that the financial performance of property and services sectors were adversely affected by the pandemic. This study's results can be partially explained by the increased focus on accelerating digital transformation in the services sector (The Conference Board, 2021) and the increased demand for housing driven by work-from-home arrangements during the pandemic (Rooney, 2021).

Overall, the findings suggest that the Philippine Stock Exchange (PSE) has a semi-strong market efficiency as the stock prices fully and immediately reflect all public information. This can be interpreted as PSE stock prices being properly valued. This aids management of listed firms in determining investor confidence and the appropriate

management strategies to further improve their market condition, with the implementation of government-led vaccination rollout.

4. CONCLUSION AND RECOMMENDATIONS

This event study analyzed whether there was a significant difference in cumulative average abnormal returns before and after the March 1 vaccination rollout by the Philippine government among different sectors of the Philippine Stock Exchange. The results of the study can assist investors in implementing their investment diversification strategy by providing insights as to how each sectors reacted differently to COVID-19 related event.

It was also found that most significant differences in stock returns were negative results which might have been caused by the investors' drop in confidence in government actions related to the vaccination rollout. In order to bring back the investors' confidence, the Philippine government is recommended to determine perceptions and readiness of the public on vaccines and to understand communities' concerns in terms of demand, acceptance, and willingness to follow government recommendations before launching its full-scale vaccination program sometime this year (Seale et al., 2021). These recommendations can also be done on an industry and/or company level, in order to determine perceptions of employees and other key stakeholders when it comes to industry's and company's future outlooks with the vaccination rollout.

In addition, due to uncertain impacts of the vaccination rollout, management of listed firms in various sectors are recommended to use the learnings from this pandemic and to craft a more appropriate crisis management program in order to recover faster from any future adverse impact brought about by the pandemic, including but not limited to financial stability concerns, deglobalization, and climate change (The Conference Board, 2021). Companies are also suggested to have an increased investment in technology and adoption of new technologies to

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accelerate digital transformation and improve innovation, while at the same time striking a balance with streamlining and recalibrating operations, improving productivity and cash flows, and controlling costs (The Conference Board). It is also important for management to devise strategies to restore investors' confidence.

Moreover, as the study is also currently limited by the potential surge in COVID-19 cases and any additional government interventions to control the pandemic, it is recommended to future researchers to expand the event window to also cover the long-term impact of vaccination rollout as an event or even study other COVID-19 related events. Determining variables that moderates the impact of an event can also be considered in future studies. A comparative study on ASEAN countries' investors' reactions to the vaccine rollout as the event is also suggested.

5. REFERENCES

- Babuna, P., Yang, X., Gylbag, A., Awudi, D. A., Ngmenbelle, D., & Bian, D. (2020). The impact of Covid-19 on the insurance industry. *International Journal of Environmental Research and Public Health*, 17(16), 5766.
- Baker, S. R., Bloom, N., Davis, S. J., Kost, K. J., Sammon, M. C., & Viratyosin, T. (2020). *The unprecedented stock market impact of COVID-19* (No. w26945). National Bureau of Economic Research.
- Çakmaklı, C., Demiralp, S., Kalemli-Ozcan, S., Yesiltas, S., & Yıldırım, M. A. (2021). The economic case for global vaccinations: An epidemiological model with international production networks. *National Bureau of Economic Research*, Working Paper 28395.
- Camba, A. L., & Camba Jr, A. C. (2020). The effect of COVID-19 pandemic on the Philippine stock exchange, peso-dollar rate and retail price of diesel. *The Journal of Asian Finance, Economics and Business (JAFEB)*, 7(10), 543-553.
- Department of Health (2021, March 2). *DOH, NTF grateful to hospitals and vaccinees as PH inoculates 756 on first day of COVID-19 vaccine rollout*. <https://doh.gov.ph/doh-press-release/doh-ntf-grateful-to-hospitals-and-vaccinees-as-ph-inoculates-756-on-first-day-of-covid-19-vaccine-rollout>.
- Department of Health (2021, March 13). *DOH, NTF: Vaccination pace expected to soar once vaccine supplies arrive*. <https://doh.gov.ph/doh-press-release/doh-ntf-vaccination-pace-expected-to-soar-when-vaccine-supplies-arrive>.
- Department of Health (2021, March 25). *Follow prioritization and wait for your turn, govt will secure vaccines for all – DOH, NTF*. <https://doh.gov.ph/doh-press-release/follow-prioritization-and-wait-for-your-turn-govt-will-secure-vaccines-for-all-doh-ntf>.
- Dumlao-Abadilla, D. (2021, March 26). Vaccine optimism fuels PSEi vigor for 3rd straight day. *Inquirer.net*. <https://business.inquirer.net/320065/vaccine-optimism-fuels-psei-vigor-for-3rd-straight-day>
- Fama, E. F. (1960). Efficient market hypothesis. *Diss. PhD Thesis, Ph. D. dissertation*.
- Fama, E. F., Fisher, L., Jensen, M. C., & Roll, R. (1969). The adjustment of stock prices to new information. *International economic review*, 10(1), 1-21.
- Foo, L. P., Chin, M. Y., Tan, K. L., & Phuah, K. T. (2020). The impact of COVID-19 on tourism industry in Malaysia. *Current Issues in Tourism*, 1-5.
- Fu, M., & Shen, H. (2020). COVID-19 and corporate performance in the energy industry. *Energy Research Letters*, 1(1), 12967.
- Getz, K. (2020). Public trust and the 'last mile' for COVID-19 vaccines. *Applied Clinical Trials*, 29(12), 11-12.
- He, P., Sun, Y., Zhang, Y., & Li, T. (2020). COVID-19's impact on stock prices across different sectors—An event study based on the Chinese stock market. *Emerging Markets Finance and Trade*, 56(10), 2198-2212.

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- Heyden, K. J., & Heyden, T. (2021). Market reactions to the arrival and containment of COVID-19: An event study. *Finance research letters*, 38, 101745.
- Hoque, A., Shikha, F. A., Hasanat, M. W., Arif, I., & Hamid, A. B. A. (2020). The effect of Coronavirus (COVID-19) in the tourism industry in China. *Asian Journal of Multidisciplinary Studies*, 3(1), 52-58.
- Kamaludin, K., Sundarasan, S., & Ibrahim, I. (2021). Covid-19, Dow Jones and equity market movement in ASEAN-5 countries: Evidence from wavelet analyses. *Heliyon*, 7(1), e05851.
- Khan, K., Zhao, H., Zhang, H., Yang, H., Shah, M. H., & Jahanger, A. (2020). The impact of COVID-19 pandemic on stock markets: An empirical analysis of world major stock indices. *The Journal of Asian Finance, Economics, and Business*, 7(7), 463-474.
- Khanthavit, A. (2020). World and national stock market reactions to COVID-19. *ABAC Journal*, 40(2).
- Laing, T. (2020). The economic impact of the Coronavirus 2019 (Covid-2019): Implications for the mining industry. *The Extractive Industries and Society*, 7(2), 580-582.
- Li, Q., & Lu, H. (2020). Latest updates on COVID-19 vaccines. *BioScience Trends*, 14(6), 463-466.
- Lin, Y., Hu, Z., Zhao, Q., Alias, H., Danaee, M., & Wong, L. P. (2020). Understanding COVID-19 vaccine demand and hesitancy: A nationwide online survey in China. *PLoS Neglected Tropical Diseases*, 14(12), 1-22.
- McIntyre, P., Joo, Y. J., Chiu, C., Flanagan, K., & Macartney, K. (2021). COVID-19 vaccines – Are we there yet? *Australian Prescriber*, 44(1), 19-25.
- Ramelli, S., & Wagner, A. F. (2020). Feverish stock price reactions to COVID-19. *The Review of Corporate Finance Studies*, 9(3), 622-655.
- Rooney, K. (2021, January 14). These 8 charts show how the global economy is coping with COVID-19. *World Economic Forum*. <https://www.weforum.org/agenda/2021/01/global-economy-covid-vaccine-charts/>.
- Seale, H., Heywood, A. E., Leask, J., Sheel, M., Durrheim, D. N., Bolsewicz, K., & Kaur, R. (2021). Examining Australian public perceptions and behaviors towards a future COVID-19 vaccine. *BMC Infectious Diseases*, 21(1), 1-9.
- Škare, M., Soriano, D. R., & Porada-Rochóń, M. (2021). Impact of COVID-19 on the travel and tourism industry. *Technological Forecasting and Social Change*, 163, 120469.
- Song, H. J., Yeon, J., & Lee, S. (2021). Impact of the COVID-19 pandemic: Evidence from the US restaurant industry. *International Journal of Hospitality Management*, 92, 102702.
- The Conference Board (2021). *C-Suite Challenge 2021: Leading in a post-COVID-19 recovery*. <https://www.conference-board.org/pdfdownload.cfm?masterProductID=23597>
- Topcu, M., & Gulal, O. S. (2020). The impact of COVID-19 on emerging stock markets. *Finance Research Letters*, 36, 101691.

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Parallel Session I: Strategy during COVID-19

Applying scenario planning for Alifa Kids kindergarten to survive and thrive during COVID-19 crisis

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Abstract: The spread of the COVID-19 virus that was detected in Indonesia in early March 2020 had an impact on SMEs with an estimated 47% of bankruptcy. Alifa Kids as an early childhood education institution that has developed professionally for 13 years, experiencing a decline of 71% in students.

The objective of this research is to develop adaptive plan for the survival and thrive of Alifa Kids in the pandemic that brings TUNA (turbulence, uncertainty, novelty and ambiguity) conditions from the coming future. This process is carried out by analysing the external and internal environment. Due to the uncertain conditions of the COVID-19 pandemic, a scenario planning approach was used to see plausible scenarios that might occur in the future. The key focal issue of scenario planning is *"What is Alifa Kids' strategy to survive and thrive in the next five years amid the COVID-19 pandemic?"*.

Based on the key focal issue, eight driving forces were identified. From these drivers, the two most critical uncertainties are determined by distinguishing those that have a high impact. Two of the most critical uncertainties were *"the pandemic subsides"* and *"willingness to adopt technology"*, then a 2 x 2 matrix was created to produce four possible scenarios. Each of these scenarios carries implications, options and early warning signals as a guide for identifying trends and plausible situations that may occur in the future. In order to survive and thrive, an adaptive plan has been prepared which becomes an implementation plan.

Key Words: *scenario planning; SME survival; adaptive plan; early childhood education; COVID-19*

1. INTRODUCTION

The spread of the COVID-19 virus had an impact on SMEs with an estimated 47% of bankruptcy in Indonesia, problems with cash flow and forced to lay off employees. Early childhood

education institutions like Alifa Kids can be categorized as SMEs that are engaged in education services. Alifa Kids part of medium enterprise category in Indonesia that has more than 100 employees and has annual sales between 2.5 billion – 50 billion IDR.

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Alifa Kids is an early education institution that targets young families from the middle-class economy in four provinces. Here is the business model canvas of Alifa Kids.

8. Key Partnerships <ul style="list-style-type: none"> School Equipment Supplier Digital Marketing Agency Education Experts 	7. Key Activities <ul style="list-style-type: none"> Teaching Parenting session Research and People Development Online & Offline Marketing 	2. Value Propositions Character-based Education (A.L.I.F.A. Characters) with Classic Education System (Principles Centre)	4. Customer Relations <ul style="list-style-type: none"> Parenting Voucher Referral Special Family & Corporate Price 	1. Customer Segments <ul style="list-style-type: none"> New family in the urban areas of Indonesia Husband: 33 - 40th Wife: 25 - 40th Middle Market with joint income Rp. 15 - 30 million IDR Professional, Manager, Entrepreneur, Civil Servant First time user Instant lifestyle & busy Care for children education
	6. Key Resources <ul style="list-style-type: none"> Teachers Management Team 		3. Channels <ul style="list-style-type: none"> 19 branches in 4 Provinces 	
9. Cost Structure <ul style="list-style-type: none"> Salary Operational Cost Rent Cost Marketing Cost Maintenance Cost Research & People Development Cost 		5. Revenue Streams <ul style="list-style-type: none"> Monthly fee Yearly Fee 		

Figure 1. Business Model Canvas of Alifa Kids

(Source: Internal Data Alifa Kids)

Since the beginning of the pandemic Alifa Kids which for 13 years has developed independently financing all business activities, has made various simple innovations to survive the pandemic, however business performance is far from normal with almost a reduction 71% of students who survived to continue studying amid the pandemic. Despite the discovery of a vaccine, the situation in 2021 will be perhaps more challenging.

As a social learning process, Alifa Kids using the scenario planning approach to strategizing and planning. During develop the scenario planning by the learners, there was eight driving forces. There are: (1) Pandemic subsidies; (2) Technology adoption willingness; (3) Consistency of regulation; (4) Competitor decision to open the school; (5) Acceptance level of parents; (6) Vaccination effectiveness; (7) Completeness of vaccination; (8) Compliance from society. The first three points are defined as the critical uncertainties that have a high impact for Alifa Kids to survive and thrive.

2. BUSINESS ISSUE EXPLORATION

The pandemic causes consumers (parents), "wait and see" by delaying their children to school. Although this is become a concern of the government as conveyed by the Director in Indonesian Ministry of Education and Culture Muhammad Hasbi who

warned of the long-term negative impact on children if parents postpone their children's education.

Since March 2020 offline schooling activities are closed has an impact in a drastic decrease in the number of Alifa Kids students, with only 21.5% of average income remaining per month compared to the previous year. As many as 50% of parents decide their child to study leave, as many as 21% of parents cancel their child's registration for the same reason. Alifa Kids only has 29% of students remaining, surviving with the willingness of parents to continue the online learning process.

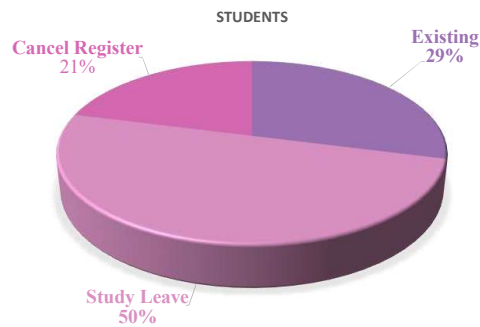


Figure 2. Percentage of Students in Alifa Kids During Pandemic

(Source: Internal Data Alifa Kids)

Since the consumers are "wait and see", future conditions that are vulnerable and full of uncertainties, Alifa Kids needs to find various alternatives in the future that will come. Alifa Kids need to define what are scenarios can be applied to adapt in TUNA condition due to pandemic situation.

Strategizing and planning through scenario planning is a process that is relevant to the existing challenges, because in an uncertain condition, planning is a continuous learning process. As explained by Van Der Heijden :

Scenario planning distinguishes itself from other more traditional approaches to strategic planning through its explicit approach towards ambiguity and uncertainty in strategic question. The most

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fundamental aspect of introduction uncertainty in strategic equation is that is turn planning for future from a once-off episodic activity into an ongoing learning proposition. In a situation uncertainty planning becomes learning, which never stops. We have an in-build urge to try to pin down situation, and try to reach a point where we have got it sorted out in our mind. If uncertainty as acknowledge it is not any longer possible to take this position of "we have done the planning, we can now get on with making it happen". The idea of continuous learning is less comfortable as it does not give us this feeling of problem closure. (1996: 7-8)

Turbulence and unpredictable uncertainty can be seen in sudden and game changing transformation that overwhelm the relations between an organization and parties with whom it regularly transact business. (2016 : 65)

Further explained that different actions are needed in this kind of situation. Conventional competitive strategies cannot answer problems when the environment is in conditions of high turbulence and uncertainty. In these conditions, organizations need to bring the world "out there" closer to learners. Learners are parties within an organization who need to carry out different strategies in understanding the business and the future that will come to them, in this case using a scenario planning approach. Each individual needs to build a better understanding of the environment in which they are in and encourage respect for different perspectives and points of view. Turbulence conditions that have unpredictable uncertainty can also involve disruptions that are unique and novel.

3. CONCEPTUAL FRAMEWORK

According to Jabareen (2009), conceptual framework define as network, or a "plane" of interlinked concept that together provide a comprehensive understanding of phenomenon or phenomena. Conceptual framework provide not causal/ analytical setting but, rather, an interpretative approach to social reality.

The following is an overview of conceptual framework for this research.

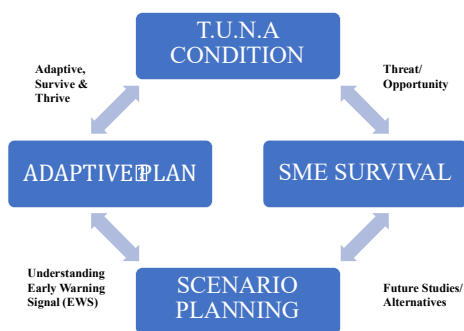


Figure 3. Conceptual Framework

3.1 T.U.N.A (Turbulence, Uncertainty, Novelty & Ambiguity) Concept

According to Ramirez and Wilkinson:

Novelty and uniqueness is a situation that is difficult to describe but can be imagined even though it has not been experienced. Unique and novel situation cannot be described effectively without the invention of new concepts and terminology. An example is the "faster horse" that was envisioned by Hendry Ford and then today becomes reality and is commonly understood. When interpretations of all the same events or phenomena are interpreted differently, ambiguity will arise. Great ambiguity also exists as a result of power and authority that are increasingly interconnected, high social complexity and an increasingly multipolar world.

3.2 SME Survival

Being in a high TUNA condition, a company, especially Small and Medium Enterprises (SMEs), needs the ability to survive, as well as crisis caused by COVID-19. SME is the party most affected in the event of an economic crisis due to their limited financial strength. Although on the other hand, SME is a party that is also easy to adapt to changes.

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According to Yuswohady and Inventure Knowledge (2020), there have been changes in the SME business environment including COVID-19 growth and incidence, global and domestic recession, economic uncertainty and intermittent social distancing policy. There are industries that are included in the category of *the Fall*, *the Rise* and *the Between*. Conventional education is in the category the *Between*, however the education model that is able to take a hybrid approach is in the category *the Rise*. In his presentation at the SMEs Industry Landscape 2021 seminar stated that the conventional early childhood education model that requires children to gather in school is in *the Fall and in Danger* category, because the risk of being exposed to the COVID-19 virus is greater and the reluctance of parents to take the risk of taking children their early age to school.

space but carries hidden potential. Future is not something that comes later but can be felt and imagined right now, something different and will come over. Working with scenario planning means leveraging people's ability to envision the future to better understand what is happening now and identify new strategies that are needed. Figure 3 below shows the iterative learning cycles of reframing and re-perception. In the vertical 'upframing' which takes in "bigger picture" to access the new space, boarded their perspective and look wider context of the intermediate situation, and at the same time as moving along the time dimension, that is, they must consider the future contexts. 'Downframing' will allow the learners to look deeper into the possible future context, feel and work with existing actions or new actions needed.

3.3 Scenario Planning

According to Lindgren and Bandhold (2003), Herman Kahn and the RAND Corporation in 1950s develop a technique called a 'future now thinking' as a part of military strategy for US government and later expanded the scenario scope to other area in mid – 1960s by actively promote 'thinking the unthinkable'. Scenario planning spread into company in 1970s especially adopted by Royal Dutch/ Shell to develop their company strategy. Shell is often considered the corporate champion of scenarios. Another organization adopt the scenario planning and use this approach as a tool for future exploration is the Swedish Secretariat for Future Studies.

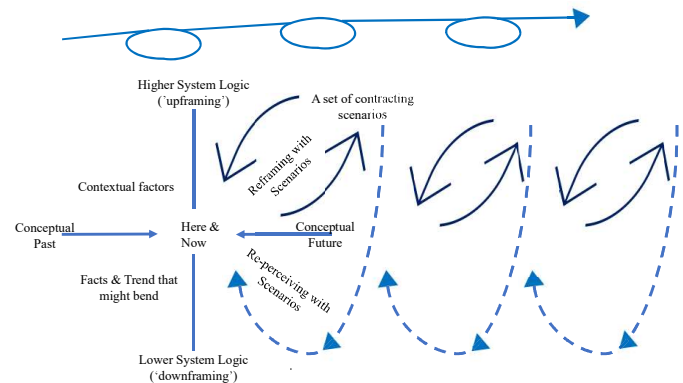


Figure 4. Iterative Learning Cycle of Reframing and Re-perception

(Source: Ramirez & Wilkinson 2016: 52)

According to Ramirez and Wilkinson (2016):

There is a growing body of work on how and where knowledge of the future is embodied. Scientists have found that the parts of our central nervous system (including but not restricted to our "brain") which house our imaginations of possible futures are also place which house memories of the past. This is why scenarios have been referred to as "memories of the past".

It is further explained that the future is a part of the present that does not occupy the current

3.4 Adaptive Plan

According to Reeves, Haanaes and Sinha (2015), in order to be successful, businesses must adapt quickly when in an unpredictable environment. An adaptive approach is needed so that the business continues to grow and excel by means of continuously adjusting to new opportunities and conditions.

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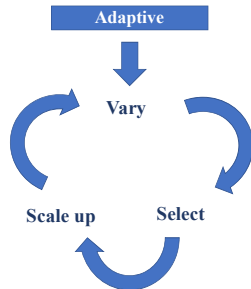


Figure 5. Adaptive Characteristic

(Source: Reeves, Haanaes and Sinha 2015)

Adaptive approach does not emphasize analysis, predictions and top-down mandate. Rather, it continuously **vary** the way they do the business by generating the novel options, and **selecting** the most promising options which then they can **scale up** and exploit before repeating the cycle. Unlike the classic approach, the adaptive approach does not focus on plans that come from one strategy only. Rather it emphasizes experimentations and focuses on means, not ends. Speed and flexibility can produce competitive advantage.

From figure of conceptual framework above, TUNA condition such as The COVID-19 pandemic will make SMEs in a survival condition. However, this situation presents both opportunities and challenges for SMEs. In order for SMEs to survive and thrive, an approach is needed that can be a tool so that SMEs can prepare everything for the future with high TUNA conditions that might occur. Scenario planning allows SMEs to study the future and find alternatives for an unpredictable future. This is because by developing scenario planning, SMEs are able to select early warning signals to make strategic changes and actions needed according to the context of each SMEs. By following carefully selected early warning signals, SMEs can develop adaptive plans so that they can survive and thrive in TUNA conditions. This framework is also suitable for Alifa Kids as SME who is in the challenge of the COVID-19 pandemic as it is today with various environmental conditions full of intensive turbulence and high uncertainty.

4. BUSINESS SOLUTION

Scenario Planning Development

The scenario planning process with Alifa Kids learners was carried out in five stages according to Garvin & Levesque, namely: orientation, exploration, scenarios creation, option consideration, and integration.

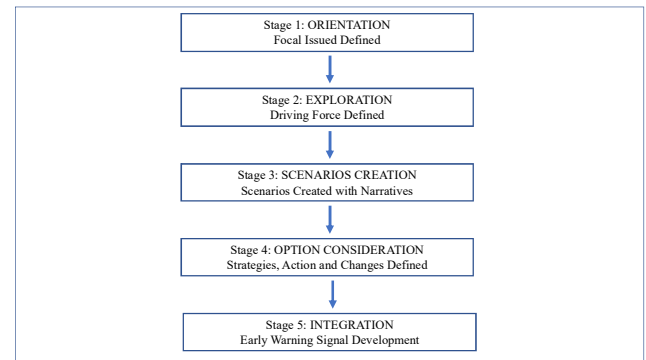


Figure 6. Scenario Planning Stages

(Source: Garvin and Levesque, 2006: 5)

FGD sessions of the learners in the Alifa Kids scenario planning development was carried out in seven sessions. There was a reframing and re-perception process from the learners. Presents different points of view which eventually becomes new input for other learners in conveying their framing. There was one iteration process which resulted in changes in the driving forces points and also the scenario generated in the 2x2 matrix. After exploring the contextual and transactional environment of Alifa Kids, the key focal issue is "What is Alifa Kids strategy to survive and thrive in the next five years due to the COVID-19 pandemic?"

The FGD was followed up by determining the driving force. There was eight driving forces and continued by ranking on the existing list of driving forces. There are three critical uncertainties that also have a high impact, as seen in table below.

Table 1. Level of Driving Force

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Level of Uncertainty		
Low	Medium	High
	Competitor's decision to open a school	Pandemic Subsidies Technology adoption willingness Consistency of regulation
Compliance from societies	Acceptance level of parents to the pandemic Vaccination effectiveness	
	Completeness of vaccination	

From the two selected critical uncertainties, four different scenarios were generated as seen in the 2 x 2 matrix below. The four scenarios that Alifa Kids might face are:

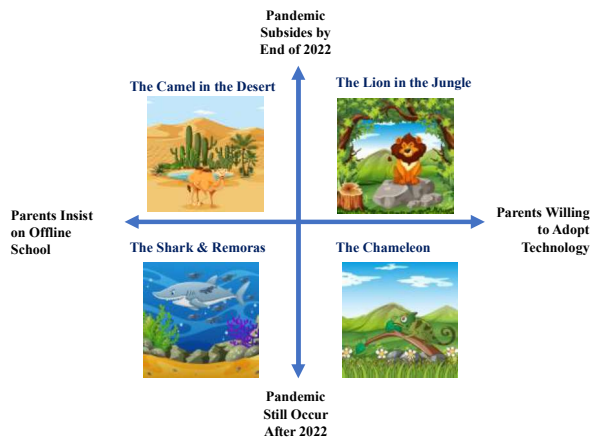


Figure 7. Scenario Planning 2 x 2 Matrix

1. *The Lion in the Jungle*

The scenario when the pandemic may end at the end of 2022 allows Alifa Kids to survive and even thrive with the latest solutions because it is supported by the willingness of parents to adopt technology for their early childhood learning process.

In this scenario, Alifa Kids needed more competent teams in online teaching as it is today. Rearrange norms and standard operating procedures for daily teaching activities and improve communication skills to parents via online, which is certainly different from face-to-face communication. If this scenario occurs, it will be advantageous for Alifa Kids because gradually learning content that can be presented online has become available which was prepared during the beginning of the pandemic.

The need for face-to-face learning processes can begin to be prepared because the end of the pandemic is starting to appear, however, it should consider changes in consumer behavior who may become accustomed to and choose to learn online. The challenge for this scenario is the team who manage the Alifa Kids' partners later. Meanwhile, for the needs of learning facilities, it can use the assets that already have.

2. *The Chameleon*

The scenario when the pandemic is still going on for longer, even past 2022, Alifa Kids can survive because of the support from parents who are willing to adopt technology in their early childhood education.

In this scenario the preparation needed is almost similar to the first scenario, however, with the pandemic that is taking longer, innovation in fun online learning based on technology needs to be prepared. The option to build an *Rumah Belajar Alifa Kids* (home for learning) partnership can provide solutions the needs of consumers who still expect face-to-face but the spread of the virus can be anticipated by opening the learning area in a narrower radius so that if there is transmission, it will be easier in the tracing process. The challenge for this scenario is the team who manage the Alifa Kids' partners later. Meanwhile, for the needs of learning facilities, it can use the assets that already have.

3. *The Camel in the Desert*

A scenario where the pandemic is likely to be completed maximally by the end of 2022, however Alifa Kids faces challenging conditions as parents are reluctant to adopt technology and persist in face to face learning models for their children, so they decide to postpone their children's schooling or seek other solutions without the use of technology.

In this scenario, it is difficult for Alifa Kids to find students and will need to survive until the end of 2022. During this time, as is currently the case, parents invite the private tutors who can come to their homes to teach their children face-to-face. Alifa Kids can collaborate with existing private tutors as partners who prepare learning content by utilizing special learning modules and applications that can be accessed by private tutors.

4. *The Shark & Remoras*

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The scenario when the pandemic will still last longer even past 2022, and the condition of Alifa Kids is very difficult because parents are still reluctant to adopt technology for their children's education and waiting for face to face learning or other solutions without the use of technology.

This scenario is the most challenging and the process of studying online is hardly in demand. Alifa Kids can build an *Rumah Belajar Alifa Kids* (home for learning) partnership, collaborate with private tutors and develop special devices for learning videos that do not require internet access, this device functions as an educational game tool.

After the scenarios were developed, the learners set several adaptive plans for all possible scenarios, namely:

- Prepare a competent team to teach online,
- Develop *Rumah Belajar Alifa Kids* (home for learning) partnership
- Develop special device for learning videos
- Offers Apps program and modules for private tutors

Here is the early warning signals set by Alifa Kids learners which needs to be monitored regularly to observe the direction of scenario changes that occur so that Alifa Kids can internally execute an adaptive plan in accordance with the direction of the scenario.

Table 2. Early Warning Signals

Signals	Indicators	Description
Pandemic Subsidies	Effectiveness and completeness of vaccination	If by the end of 2021 the Vaccination pro targeted 50% of the population
Technology	Technology adoption willingness	If a number of parents are still reluctant i adoption and delay sending their childre
Politie	Consistency of regulation	If the government regulations regarding l keep changing
Competitor	Competitor's decision to open a school	If the number of competitors who dare to schools increases

5. CONCLUSION

The COVID-19 pandemic which is high of uncertainty needs to be addressed by taking

different actions from previous business actions. Alifa Kids needs to follow up on existing business opportunities with various changes in consumer behaviour and social situations as well as technological developments that occur. From the several options that have been obtained in each existing scenario planning, it is necessary to group them into categories based on priority.

Throughout the pandemic, Alifa Kids has taken several actions to survive, however with the uncertain completion of the pandemic, the adaptive plans that have been prepared need to be further studied and tested to find which ones are worthy of being scaled up while still guided by company's vision, mission and values .

Building a partnership in the form of the "Rumah Belajar Alifa Kids" (home for learning) is one plan that need to be prepared carefully and it needs to be realized that this program has the potential to change the Alifa Kids business model from previously Business to Customers added into Business to Business. It takes a different internal management competence than before and the involvement of qualified technology to develop early education content that is able to provide educational services to children during a pandemic without losing their learning opportunity while remain protected from the dangers of the spread of COVID-19.

6. REFERENCES

- Bourletidis & Triantafyllopoulos, 2014, SMEs Survival in Time of Crisis : Strategies, Tactics and Commercial Success Stories. *Procedia Social and Behavioral Sciences* 148 : 639-644
- Garvin and Levesque, 2006, A Note on Scenario Planning. *Harvard Business School*, 9-306-003
- International Finance Corporation (IFC), 2016, *Woman owned SMEs in Indonesia: A Golden Opportunity for Local Financial Institution*.
https://www.ifc.org/wps/wcm/connect/260f2097-e440-4599-91ec-e42d45cf3913/SME+Indonesia+Final_Eng.pdf?MOD=AJPERES&CVID=lj8qhPY

2021 ASEAN UNIVERSITY NETWORK BUSINESS AND ECONOMICS VIRTUAL CONFERENCE

April 16, 2021



Conference theme: "Enabling the Transformation of
Resilient Business Environment and Innovation Ecosystem in the ASEAN"

Jabareen, 2009, Building a Conceptual Framework:
Philosophy, Definitions, and Procedure. *Ijom
International Journal of Qualitative Methods*

KPPA. (2019): "*Profil Anak Indonesia 2019*"

Lindgren and Bandhold, 2003, *Scenario Planning
the Link Between Future and Strategy*, New York,
Palgrave Macmillan, 21-37

OECD, 2020, Coronavirus (COVID-19): SME Policy
Responses.

Ramirez and Wilkinson, 2016, *Strategic Reframing:
The Oxford Scenario Planning Approach*, Oxford,
OX2 6DP, Oxford University Press

Reeves, Haanaes, and Sinha, 2015, *Your Strategy
Need A Strategy*, Boston, Harvard Business School
Publishing

Rothaermel, F.T. (2019). *Strategic Management* (4th
ed.). New York: McGraw-Hill Education

UNICEF, 2020: *Covid-19 and Children in Indonesia*,
May

Yuswohady & Inventure Knowledge, 2020, UKM
Industry Landscape 2021.

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The Importance of Talent Farming towards Strategic Agility in the post-pandemic era: A perspective of SMEs in the manufacturing sector

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Abstract: The purpose of the study is to highlight the importance of talent towards strategic agility in the post-pandemic era which necessitates an organisation to sense, foresee and forecast trends in the dynamic business landscape with a timely response with adequate initiative moves. A total of 149 responses from a cross-sectional survey from Malaysian manufacturing SMEs were investigated using SPSS software version 24 and Partial Least Squares-Structural Equation Modeling (PLS-SEM). The findings reveal that talent retention and talent displacement have a significant influence on strategic agility but talent harnessing and talent acquisition has no influence on strategic agility. The dimension of Talent Farming and research conceptual framework was chosen and formulated based on I-TOP Strategic Agility Model and Dynamic Capability Theory respectively. The empirical analysis and the conceptual framework make an important contribution towards theoretical, practitioner and policy in the area of talent towards strategic agility to support manufacturing SMEs in the pandemic era. The novelty of this study lies in highlighting the importance of strategic agility and connecting strategic agility with human resource management practices focusing on Talent Farming.

Key Words: Talent Farming; I-TOP Strategic Agility Model; Post pandemic; Small Medium Enterprises (SME).

1. INTRODUCTION

The Covid-19 pandemic outbreak is a human tragedy afflicting billions of people and invariably the economies of most, if not all, countries in this world. Since SMEs play an important role in the growth of the country's GDP and is the hardest hit by the deadly epidemic. SMEs demonstrated a lack of resilience and agility to remain relevant to this adverse condition (Omar et al., 2020; Lim & Teoh, 2021). The crisis caused by the Covid-19 pandemic has forced SMEs into digitalization transformation as the solution to remain sustainable and competitive. As the crisis has accelerated the levels of digitization to help reduce

avoidable physical interactions. It also triggered ways to reinvent work and, in some cases, partial displacement of jobs and changes in the way workforce executing them. In the post-pandemic, it has seen lasting employment-landscape shifts that require the large-scale reskilling and upskilling of new talents. With sourcing and production moving closer to end-users, the crisis triggered a restructuring of global supply chains shift which skills are needed and where (Agrawal et al., 2020). SMEs caught in surprise on the readiness during and post-pandemic due to lack of strategic agility (Yusoff et al., 2018). Strategic agility refers to the ability of the organization in sensing changes, making decisions timely and real-time implementation during a dynamic and uncertain

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business landscape (Uğurlu et al., 2018; Muthuveloo & Teoh, 2020).

The findings of Mamun (2019), reported that lack of knowledge existed about the nature of the strategic agility of Malaysian SMEs. It is, therefore, crucial to identify the factors that affect the performance of Malaysian manufacturing SMEs. Examining these aspects would, in turn, lead to an increase in competitive advantages and superior performance among Malaysian manufacturing SMEs. These led business leaders to recognize the importance of agility in their talent development program due to aggressive talent war in industries. This shift of paradigm has forced human resource management (HRM) to guide employees in this unprecedented situation in the post-pandemic era to able to respond and adapt to the change by reskilling and upskilling while retaining their employees (Carnevale & Hatak, 2020; Gigauri, 2020; Munteanu et al., 2020). In reality, the current talent management practices are no longer meeting the strategic agility needs of businesses (Aina & Atan, 2020; Arbussa et al., 2017).

As Malaysia post-pandemic seems to show that during the crisis, the manufacturing sector helped cushion the blow to the services sector in terms of GDP and job creation, this study scope will be on strategic agility among the manufacturing SMEs in Malaysia (BNM., 2020). This study attempts to provide empirical evidence on the relationship between the four identified talent dimensions of talent farming which was conceptualised towards strategic agility among manufacturing SMEs in Malaysia. This study provides the complementary talent nurturing approach to address the current talent management gaps for the post-pandemic era. The paper provides strategic insights, practical knowledge and policies that assist SMEs in the manufacturing sector to strategies to explore another alternative approach to equip for the digital competencies workforce, which inclines to strategic agility in the post-pandemic era. This study is indeed novel in that limited study to the best knowledge of the researchers has looked at the talent of manufacturing SMEs from the lenses of their strategic agility in unprecedented situations such as this covid-19 post era.

Therefore, the importance of a new approach of talent management in the angle of talent farming needs to be further investigated to

ensure the right mix of people dimension to contribute towards the success of strategic agility (Palanisamy, S. et al., 2021; Muthuveloo & Teoh, 2020). To form the right contributors to the theoretical foundation for the research on manufacturing SMEs strategic agility, a completely new combination of talent dimensions need to be explored in human resource management practices. The following section examines four talent farming dimensions that will assist in explaining how to optimise the strategic agility of manufacturing SMEs:

Dimension #1: Talent Harnessing refers to identifying competencies gaps in terms of knowledge, ability and skillsets of the organizational workforce through continuous, systematic and structure development plan to sustain and meet the future success of the organization (Mamun & Hasan, 2017);

Dimension #2: Talent Acquisition refers to identify and acquire critical position talents from external to complement the existing talent pool when internal talents unable to fill in or unable to upskilling to meet the needed competencies (Knowledge, ability, skillsets) to sustain and support the future success of the organization (Cho & Ahn, 2018);

Dimension #3: Talent Retention refers to retaining and integrate existing talents and new hires from external of the organisation for business continuity with the right conducive working environment, fairly rewarding system and support among employees (Aina & Atan, 2020); and

Dimension #4: Talent Displacement refers to separation and detachment from the organization permanently or moves into new roles due to technology disruption (eg. IR4.0), restructuring, alignment to the new business model, or merger acquisitions (Cho & Ahn, 2018)..

2. METHODOLOGY

The I-TOP Strategic Agility Model conceptualised by Muthuveloo & Teoh (2020) together with the Dynamic Capability Theory as underpinning model and theory to construct the study conceptual framework under the dynamism of post-pandemic.

Based on the theoretical framework and conceptual framework based on the studies done by Palanisamy, S. et al., (2021), this study demonstrated the importance of Talent Farming towards strategic agility. Among the four talent

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farming dimensions, talent retention and talent displacement showed a significant positive influence on the strategic agility of Malaysian manufacturing SMEs in the pandemic era.

This study used the purposive non-random sampling method as it is practical and swift as data collection was done during the pandemic period. This study focuses on manufacturing SMEs in Malaysia. The quantitative research method was used in this study and the data was collected using the online questionnaire approach. All questionnaires selected used a 5-point Likert scale. SmartPLS-SEM version 3.2.7 was used for PLS data analysis for hypotheses testing, while IBM-SPSS Version 24.0 was used for descriptive statistical analysis.

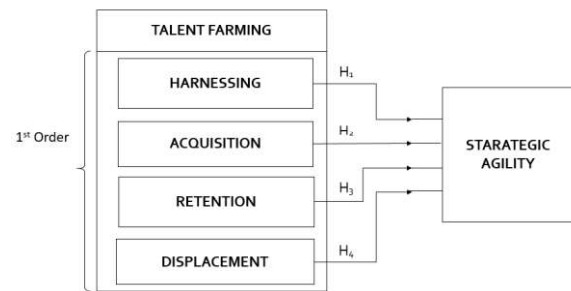


Figure 1. Conceptual Framework

2.1 Research Design

The primary goal of this study is to test out the hypotheses formulated to examine the relationships of the different key variables identified in the context of manufacturing SMEs in Malaysia through its correlational study. To ensure minimal interference from the researcher as the survey was conducted within a non-fixed study setting where the variables being studied took place generally at the respondent's convenience environment. Furthermore, this is a cross-sectional study as it was based on a one-time data collection time horizon between November to December 2020, to answer the research questions raised in the study. Finally, this research design best fits the constraints of costs, time and post-pandemic recovery focus priorities in organisations when carrying out this particular study.

2.2 Population and Sample Size

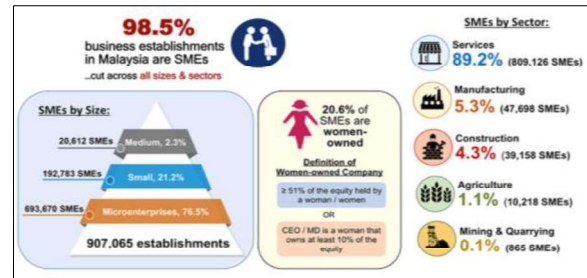


Figure 2. SME Landscape of Malaysia (Economic Census 2016). Department of Statistics Malaysia (DOSM)

This study is based on the strategic agility of Manufacturing SMEs whereby the unit of analysis is the organisation. Type of organisation under study are textiles & wearing apparel, printing and reproduction of recorded media, rubber & plastics product, wood and products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials, food & beverages product, machinery & equipment incl. repair & installation, furniture, computer, electronics and optical products, electrical equipment. The target respondent population in this research is representative of organisations involved in strategies planning and execution such as the top management, senior management and the senior executive's team of manufacturing SMEs in Malaysia. This survey excluded the large local companies (LLC) and micro industries due to size of employees and financial bandwidth.

3. RESULTS AND DISCUSSION

A self-administered online questionnaire link was emailed to a total of 510 respondents from manufacturing SMEs in Malaysia. At the end of a 2-month survey period (from November to December 2020), a total of 149 responses were received indicating a 29.2 % response rate. Based on these results, the measurement model is assured of construct validity and reliability as all AVE values were above 0.50, while the composite reliability values exceeded the recommended cut-off value of 0.708. Strategic agility has an R² value of 0.734, representing that the combined effects of predictors of talent harnessing, talent acquisition, talent



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retention, and talent displacement under talent farming dimensions were able to explain 73.4% variance of strategic agility.

The data analysis revealed that two hypotheses (H₁ and H₂) were not supported. Firstly, although Talent Harnessing has a positively correlated relationship but not significant with strategic agility at $\beta = 0.156$, $p > 0.05$, $t < 1.645$. Secondly, the construct of talent acquisition insignificant influence on strategic agility at $\beta = 0.049$, $p > 0.05$, $t < 1.645$. On the other hand, the remaining hypotheses (H₃ and H₄) were supported. For instance, both talent retention and talent displacement have a significant influence on strategic agility at $\beta = 0.523$, $p < 0.05$, $t > 1.645$; and $\beta = 0.190$, $p < 0.01$, $t > 1.645$ respectively.

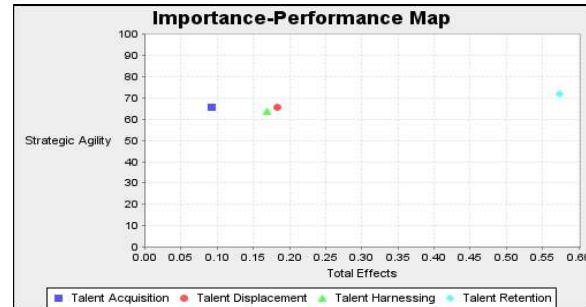


Figure 3. Importance-Performance Matrix Analysis Map

Hence, based on performance influence, all four aspects of talent dimensions under talent farming do show the influence of strategic agility of manufacturing SMEs in Malaysia.

Table 1. Results of Structural Model

Hypothesis	Relationship	Standard Beta (β)	t-value	p-value	Dec
H ₁	Talent Harnessing has significant positive influence on the Strategic Agility of SMEs in Malaysia	0.156	1.459	0.073	N
H ₂	Talent Acquisition has significant positive influence on the Strategic Agility of SMEs in Malaysia	0.049	0.779	0.218	N
H ₃	Talent Retention has significant positive influence on the Strategic Agility of SMEs in Malaysia	0.523	4.654	0.001	Supp
H ₄	Talent Displacement has significant positive influence on the Strategic Agility of SMEs in Malaysia	0.190	2.771	0.003	Supp

Note: NS – Not Supported

The unsupported hypothesis related to talent harnessing and talent acquisition can be explained from the recent study done by Kumar & Ayedee (2021) during a pandemic, where manufacturing SMEs are faced a difficult time with many ceasing to operate due to an increase in overall costs, and cash reserves are depleting.

However, Figure 3 illustrated that talent retention showed the highest importance to strategic agility. Followed by talent displacement, talent harnessing and talent acquisition.

4. CONCLUSIONS

As IPMA results demonstrated all four talent farming dimension are equally important, this study demonstrated the importance of Talent Farming towards strategic agility. However, among the four talent farming dimensions, talent retention and talent displacement showed a significant positive influence on the strategic agility of Malaysian manufacturing SMEs in the pandemic era. A recommend further future research based on case study been done to understand better once the pandemic effect stabilizes.

The paper contributes theoretically by confirming that the existing I-TOP Strategic Agility Model and the Dynamic Capability Theory relevant to this research where the influences of talent farming on strategic agility in the post-pandemic era. However, there were three limitations were identified in this study. Firstly, for practical reasons, this study relied on a self-reporting survey which could add to common method bias. Secondly, the study used a purposive non-random sampling technique which could introduce biased data. Thirdly, the challenges in conducting the survey follow up and data collection during pandemic movement control enforced by the Malaysian government. The author trusts this paper will help clear some important terrain in this subject of study, which afterwards will pave other researchers to delve even more deeper.

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6. REFERENCES

- Agrawal, S., Smet, A. D., Lacroix, S., & Reich, A. (2020). Adapting employees' skills and roles to the post-pandemic ways of working will be crucial to building operating-model resilience. McKinsey Global & Company.
- Ahammad, M. F., Glaister, K. W., & Gomes, E. (2020). Strategic agility and human resource management. *Human Resource Management Review*.
- Aina, R. A., & Atan, T. (2020). The Impact of Implementing Talent Management Practices on Sustainable Organizational Performance. *Journal of Sustainability*.
- Arbussa, A. B., & Marquès, P. (2017). Strategic Agility-driven business model renewal: the case of an SME. *Management Decision*, 55(2), 271-293.
- Arokodare, M., & Asikhia, O. (2020). Strategic Agility: Achieving Superior Organizational Performance through Strategic Foresight. *Global Journal of Management and Business Research: A Administration and Management*.
- BNM. (2020). Bank Negara Malaysia. Retrieved from <https://www.bnm.gov.my/>.
- Carnevale, J. B., & Hatak, I. (2020). Employee Adjustment and Well-Being in the Era of COVID-19: Implications for Human Resource Management. *Journal of Business Research*.
- Cho, H.-j., & Ahn, J.-Y. (2018). The Dark Side of Wars for Talent and Layoffs: Evidence from Korean Firms. *Sustainability*.
- Gigauri, I. (2020). Effects of Covid-19 on Human Resource Management from the Perspective of Digitalization and Work-life-balance. *International Journal of Innovative Technologies in Economy*.
- Khai, K. G., Onn, Y. W., Zulkifli, R. B., Kandasamy, S., & Ahmad, A. B. (2020). The Necessity to Digitalize SMEs Business Model During The Covid-19 Pandemic Period to Remain Sustainable in Malaysia. *Journal of Education and Social Sciences*.
- Kumar, A., & Ayedee, N. (2021). Technology Adoption: A Solution for SMEs to Overcome Problems During Covid-19. *Academy of Marketing Studies Journal*.
- Lim, C. H., & Teoh, K. B. (2021). Factors influencing the SME business success in Malaysia. *Annals of Human Resource Management Research*.
- Mamun, A. A. (2019). Diffusion of innovation among Malaysian manufacturing SMEs. *European Journal of Innovation Management*, 21(1), 113-141.
- Mamun, C. A., & Hasan, M. N. (2017). Factors affecting employee turnover and sound retention strategies in business organization: a conceptual view. *Problems and Perspectives in Management*.
- Munteanu, A.-I., Bibu, N., Nastase, M., Cristache, N., & Matis, C. (2020). Analysis of Practices to Increase the Workforce Agility and to Develop a Sustainable and Competitive Business. *Journal of Sustainability*.
- Muthueloo, R., & Teoh, A. P. (2020). Optimisation of Organisational Performance via I-top Strategic Agility Model. *Journal of Entrepreneurship, Business and Economics*.
- Omar, A. R., Ishak, S., & Jusoh, M. A. (2020). The impact of Covid-19 Movement Control Order on SMEs' businesses and survival strategies. *Malaysian Journal of Society and Space*.
- Palanisamy, S., Chelliah, S., & Muthueloo, R. (2021). Optimization of Organizational Performance Among Malaysian Manufacturing SMEs in Digital Age via Talent Farming. *Journal of Entrepreneurship, Business and Economics*.

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Uğurlu, Ö. Y., Çolakoğlu, E., & Öztosun, E. (2018).
Strategic Agility and Firm Performance
Relationship: A Research in Manufacturing
Firms. International Applied Social Science
Congress. Demre Antalya, Turkey.

Yusoff, T., Wahab, S. A., Latiff, A. S., Osman, S. I.,
& Zawawi, N. F. (2018). Sustainable Growth in
SMEs: A Review from the Malaysian
Perspective. Journal of Management and
Sustainability; Vol. 8, No. 3.

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Parallel Session J: Other Relevant Topics on Business and Economics



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The moderating effect of governance on the relationship between motivation and performance? An investigation of university and industry collaboration

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Abstract: Collaboration between university and industry is a strategic move toward a nation's future direction. This study examines academic motives to enter university-industry collaboration (UIC) and how these motivations affect collaboration performance. Since UIC performance is context dependent hence this study also examines the moderating role of relationship governance. This study's data were collected using survey method among academic who works in a public research university and collaborates with industry. A total of 1000 electronic questionnaires were distributed via internal email resulting in 95 effective and yielding 9.5 percent response rate. Measurements were adapted from existing studies. Exploratory factor analysis was performed using SPSS 26 to test whether a single factor explained most of the covariance among the constructs. A series of confirmatory factor analysis was run to test the validity and internal consistency of the scales. This study utilises a hierarchical moderated regression analysis using SPSS 26 to examine the research model. The results indicate that government and institutional policy and knowledge generation and dissemination are critical indicators of necessity that motivate academic to enter UIC and positively influence the performance outcome. Besides, difference governance mechanisms play various roles in the relationship between motivation and UIC performance. Institutional program to encourage academic to enter into a relationship with industry should look into the types of academic motivation and carefully manage the collaboration efficiency using different types of relationship governance.

Key Words: University-industry collaboration, Performance, Motivation, Relationship Governance

1. INTRODUCTION

Collaboration between university and industry is a strategic move toward the future direction of a national economy. This is because university-industry collaboration (UIC) serves as an effective conduit for knowledge transfer and knowledge generation which is useful for education and research (Thune, 2010) as well as achieving the university's 'third mission', defined as university's role as an agent of economic growth via commercialization of innovative knowledge

(Perkmann et al., 2013). On the other hand, resource sharing also helps expand the industry knowledge base and develop new products (Kobarg and Stumpf-Wollershelm, 2018).

Numerous research has examined the driving factors of academia to collaborate with industry and its impact on collaboration performance. However, the literature necessitates further investigation of academic behaviour's determinant on industrial engagement for several reasons. First, an individual incentive for specific motivation is directed by institutional programs and

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policy (Freitas and Verspagen, 2017) and subject to institutional constraints that vary across countries due to differences in policy, politics, and culture (Azman et al., 2018). Second, the university actions and program in encouraging industrial engagement among academic are strongly influenced by the national policy (Tseng et al., 2020) and the level of economic development. Third, participation rates of academic involvement in various activities and channels for establishing UIC vary among countries (Perkmann et al., 2013). Notwithstanding knowledge on academic motivation to engage in UIC remain fragmented (Huang et al., 2019) the literature seems to imply that research on the academic motive to enter UIC and its impact on the collaboration outcomes worth investigation especially in the context of a country where the similar study is in existence.

Against this background, this study's objective is to investigate the role of various governance mechanisms over academics' motivational factor to engage in UIC and its effect on relationship success. Therefore, the main theoretical contribution that links this study to the literature gap is the inclusion of different governance mechanisms such as contractual and relational governance, and the moderating impact on the relationship between academic motivation and relationship performance.

1.1 Academic Motivation and Collaboration Performance

Motivation to engage in collaboration is based on a presumption that UIC allows resources and knowledge acquisition and social capital development (Perkmann et al., 2013). Huang et al. (2019) found that motivational factors vary according to the performance outcome, but commercialisation and access to the resource are positive and consistent across performance outcomes. Previous studies (Cai et al., 2011) also found support that UIC was driven by learning, access to resources and monetary incentive among academic from science and engineering faculties.

Hypothesis 1: Academic motivation to enter UIC is positively related to collaborative performance.

1.2 Moderating Function of Governance

Contractual governance is a formal contract that controls the outcome and process by monitoring appropriate behaviour during exchanges (Gretsch et al., 2020). It highlights formal procedures to protect partners from opportunistic behaviours and conflict (Cao and Lumineau, 2015). A university's purpose of entering UIC is different from industry; thus, the heterogeneity of expected outcome (Huang, 2018). This gap leads to multiple difficulties in managing the transaction and disincentive for value creation initiatives. Consequently, conflicts arise, and transaction inefficiency occurs due to misunderstanding during joint actions. Complex contracts help to restraint potential exchange hazards by offering remedies and process solution for foreseeable contingencies and unforeseeable outcome (Poppo and Zenger, 2002). The terms and content of the contract and the project's objective are jointly established through negotiation between industry and university; hence, both parties have to satisfy (Fassio et al., 2019). Thus, academic motivation under the influence of contractual governance effect relationship performance positively.

Hypotheses 2: Contractual governance moderates the relationship between motivational contingencies and relationship performance.

The management of inter-organisational relationship can be more efficient under relational exchange mechanism (Ju and Gao, 2017) by engaging social control through shared value, social norm and trust to monitor behaviour so as creating synchronisation and alignment of partners' interest as well as restraining opportunism (Huang et al., 2014). The principle view of relational governance is the reliance on informal structure and self-enforcement. The misalignment in UIC is the outcome of partner differences and hinder value creation activities (Freitas and Verspagen, 2017). Academic risks of losing their knowledge proprietary unilaterally through opportunistic behaviour of the industrial partner. Relational governance offers effective management mechanism to develop mutual understanding and relationship benefits (Blonska et al., 2013). Therefore, academic motivation is contingency on relational governance in its impact on relationship performance.

Hypotheses 3: Relational governance moderate the relationship between motivational contingencies and relationship performance.

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2. METHODOLOGY

Data were collected using the survey method. Measurements were adapted from existing studies. The respondents were asked to what extent they agree with the scale items. This study used a 5-point Likert scale, ranging between "5 = strongly agree" and "1 = strongly disagree". The questionnaire was first pre-tested among 20 academics who were involved in UIC. Based on their comments, the measures were refined for the final version of the questionnaire. This study further purified the measures after collecting data using confirmatory factor analysis explained in the next section.

Two stages factor analysis was conducted to test the subconstructs and its measurement items. First, EFA was performed using SPSS 26 to test whether a single factor explained the majority of the covariance among the constructs. This test is appropriate to address the concern of common method variance (CMV). In doing so, this study used Harman's single factor test with extraction method principal component analysis and Varimax rotation. This study used eigenvalue to determine the appropriate number of factors to extract. Eigenvalue explains how much variance in observe indicators being explained by a latent factor, and factors with an eigenvalue above one are retained.

A series of CFA was run to test the validity and internal consistency of the scales. While reliability was tested using composite reliability, validity, on the other hand, used average variance extracted (AVE).

Table 3. Correlation matrix, reliability and average variance extracted

	1	2	3	4	5	6	7
1. Necessity	0.76						
2. Efficiency	0.28	0.81					
3. Reciprocity	0.35	0.47	0.78				
4. Legitimacy	0.41	0.22	0.26	0.85			
5. Contractual	0.34	0.32	0.13	0.15	0.80		
Governance							
6. Relational	0.29	0.07	0.24	0.10	0.25	0.81	
Governance							
7. Relationship	0.44	0.17	0.18	0.21	0.42	0.45	0.79
Performance							
Mean	3.88	3.63	3.75	3.71	3.79	3.89	3.99
Standard	0.54	0.74	0.74	0.70	0.72	0.62	0.48
Deviation							
Skewness	0.08	-0.8	-0.5	-0.7	-0.7	-0.4	0.3
Kurtosis	0.23	1.40	0.79	1.50	1.05	1.08	0.61

Root mean square AVE in diagonal; Pearson correlation between any two constructs are shown in the lower left of the diagonal:

All AVE values above desirable 0.50 level with the lowest was 0.58 (Necessity), indicating the convergent validity. In this study, the square root AVE scores are greater than the correlation values between any two constructs. Square root AVE ranges between 0.76 and 0.85, and the highest value of the Pearson correlation was 0.45. Based on Fornell and Larcker (1981) this finding suggests that there is adequate discriminant validity. Values for composite reliability range between 0.791 and 0.901, indicating strong reliability exceeding 0.70 thresholds (Hair et al., 2010)

This study used two procedural remedies to address the concern for multicollinearity. First, values for Pearson correlation were 0.45 ($P < 0.001$), well below 0.70 thresholds (Tabachnick and Fidell, 2007). Second, this study also used a variance inflation factor (VIF) to assess the effect of multicollinearity. For the interaction effect, this study mean centred the value of predictors. Table 3 shows the VIF values for all factors below 2.0. As for the interactions, the higher VIF value was 4.89, which is less than ten threshold (Hair et al., 2010). The findings of these two procedures show that predictors in this study did not have a multicollinearity problem.



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3. RESULTS AND DISCUSSION

This study conducted a hierarchical moderated regression analysis using SPSS 26 to examine the research model. Table 4 presents the results of the seven regression models. We entered the control variables in the regression equation (Model 1). Control variables contribute 11.3 percent ($R^2\Delta = 0.113$) of the variance in relationship performance. Text within tables should use 9 pt. Century font, as shown in the example below. Tables should as much as possible occupy only one column page. Table headings should be re-indicated for catenated tables.

Independent variables were added in model 2. These findings demonstrate that test for Hypothesis 1 produces mixed results. Only one independent variable (necessity) significantly influences relationship performance, whereas the other three motivational factors (efficiency, reciprocity and legitimacy) did not significantly influence relationship performance.

Finally, to test the moderation effect, we enter interaction between the independent and moderating variables in model 3. All variables in the interactions were first mean centred. In total there were eight interactions and together these interactions contributed 14.1 percent of total variance in collaboration performance (model fit significant: R^2 Change = 0.141, F Change = 2.61, $p < 0.05$, two-tailed test). The results show only three interactions significantly related to relationship performance. Interaction between reciprocity and relational governance has significant but negative effect on relationship performance ($\beta = -0.49$, t -value = 2.72, $p < 0.01$). In addition, interaction between efficiency and relational governance has significant but negative effect on relationship performance ($\beta = -0.57$, t -value = -3.78, $p < 0.001$). Finally, the interaction between legitimacy and relational governance has significant but positive effect on relationship performance ($\beta = 0.21$, t -value = 1.97, $p < 0.05$). The remaining interactions did not significantly influence relationship performance.

Table 1 Hierarchical Moderated Regression

Variables	Dependent Variable: Collaborative Performance		
	Model 1	Model 2	Model 3
<i>Control Variables</i>			
Gender	0.2(2.0)*	0.1(1.5)	0.1(1.4)
Years in Academic	-0.1(-1.4)	-0.1(-1.3)	-0.1(-1.2)
Faculty	0.2(2.2)*	0.1(2.1)*	0.1(1.9)
<i>Independent Variables</i>			
Necessity	-	0.2(2.5)*	0.2(1.9)
Efficiency	-	-0.1(-1.5)	-0.04(-0.3)
Reciprocity	-	0.04(0.4)	-0.03(-0.2)
Legitimacy	-	0.01(0.1)	0.2(1.9)
<i>Moderator</i>			
RG	-	0.2 (2.4)*	0.16 (1.4)
CG	-	0.1 (1.8)	0.3 (2.9)**
<i>Interaction</i>			
Necessity x RG	-	-	-0.1 (-1.2)
Efficiency x RG	-	-	0.4 (2.7)**
Reciprocity x RG	-	-	-0.5 (-3.7)***
Legitimacy x RG	-	-	0.08 (0.6)
Necessity x CG	-	-	0.2 (1.9)*
Reciprocity x CG	-	-	-0.1 (-1.1)
Efficiency x CG	-	-	0.1 (1.1)
Legitimacy x CG	-	-	-0.1 (-1.4)
F Change	3.84*	5.57**	2.61*
R	0.113	0.338	0.479
R^2 Change	0.113	0.087	0.141

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t -value in parentheses; $N = 95$; Durbin Watson = 1.740

4. CONCLUSIONS

In this study, all three hypotheses produced mixed findings. While the above discussion explains the supported relationships, other relationships that were not supported meaningful carry explanation. University and industry are two separate organisations in term of motivation to enter collaboration. While businesses aim to gain monetary benefits, universities, on the other hand, are concerned with social responsibility. When both organisations enter into collaboration, the wellbeing of such collaboration is contingent upon a satisfactory alignment of research objectives and expectation of both organisations (Ankrah et al., 2013). Since motivation directly impacts the expectation of performance outcomes (Bonaccorsi and Piccaluga, 1994), university and industry motivation alignment is critical and should be integrated into the project. Based on the findings of a study by Freitas and Verspagen (2017), specific axes of motivation to enter UIC occurred, and it

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depends on the types of project and level of communication and formal organisational format for knowledge transfer.

This study offers several managerial implications. Our findings show that not all academic motivation directly influence the performance outcome of UIC. Academic demonstrate responsibility to help the nation develop its economy through new knowledge generation and dissemination through UIC. To ensure that UIC's intended outcome is successfully achieved, managers should consider the elements of the knowledge economy in the government and institutional policy as an effective instrument to motivate academic to enter UIC.

There are several limitations of this study which may offer several lines of future study. First, concerning the findings' generalizability, due to reasonably low response rate and the model was examined in one research university in Malaysia. Second, this study's sample was mostly academic in the social science domain; hence findings were biased toward that discipline. Therefore, the sample in study biased toward social science academic. As a suggestion for future research, replicating the model in different contexts such as country and hard sciences will confirm the rigour and expand existing theory on UIC, mainly moderating governance's role in motivation and performance.

5. ACKNOWLEDGMENTS

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6. REFERENCES

ANKRAH, S. N., BURGESS, T. F., GRIMSHAW, P. & SHAW, N. E. 2013. Asking both university and industry actors about their engagement in knowledge transfer: what single-group studies of motives omit. *Technovation*, 33, 50-65.

AZMAN, N., SIRAT, M., PANG, V., LAI, Y. M., GOVINDASAMY, A. R. & DIN, W. A. 2018. Promoting University–Industry Collaboration in Malaysia: stakeholders' perspectives on expectations and impediments. *Journal of Higher Education Policy and Management*, 41, 86-103.

BLONSKA, A., STOREY, C., ROZEMEIJER, F., WETZELS, M. & RUYTER, K. D. 2013. Decomposing the effect of supplier development on relationship benefits: The role of relational capital. *Industrial Marketing Management*, 42, 1295-1306.

BONACCORSI, A. & PICCALUGA, A. 1994. A theoretical framework for the evaluation of university-industry relationships. *R&D Management*, 24, 229-247.

CAI, S., YANG, Z. & JUN, M. 2011. Cooperative norms, structural mechanisms, and supplier performance: Empirical evidence from Chinese manufacturers. *Journal of Purchasing and Supply Management*, 17, 1-10.

CAO, Z. & LUMINEAU, F. 2015. Revisiting the interplay between contractual and relational governance: A qualitative and meta analytic investigation. *Journal of Operations Management*, 33-34, 15-42.

FASSIO, C., GEUNA, A. & ROSSI, F. 2019. Which governance of university–industry interactions increases the value of industrial inventions? *Industrial and Corporate Change*, 28, 1227-1256.

FREITAS, I. M. B. & VERSPAGEN, B. 2017. The motivations, institutions and organization of university-industry collaborations in the Netherlands. *Journal of Evolutionary Economics*, 27, 379-412.

GRETSCHE, O., TIETZE, F. & KOCK, A. 2020. Firms' intellectual property ownership aggressiveness in university–industry collaboration projects: Choosing the right governance mode. *Creativity and Innovation Management*, 29, 359-370.

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- HAIR, J. F., BLACK, W. C., BABIN, B. J. & ANDERSON, R. E. 2010. Multivariate data analysis: A global perspective, Upper Saddle River, NJ, Pearson Education, Inc.
- HUANG, C. Y., YANG, C. W. & FANG, S. C. 2019. The contrasting interaction effects of university-industry collaboration motivation with demographic characteristics on university-industry collaboration performance in Taiwan. *Technology Analysis & Strategic Management*, 31, 1048-1062.
- HUANG, M. C., CHENG, H. L. & TSENG, C. Y. 2014. Reexamining the direct and interactive effects of governance mechanisms upon buyer-supplier cooperative performance. *Industrial Marketing Management*, 43, 704-716.
- JU, M. & GAO, G. Y. 2017. Relational Governance and Control Mechanisms of Export Ventures: An Examination Across Relationship Length. *Journal of International Marketing*, 25, 72-87.
- KOBARG, S. & STUMPF-WOLLERSHELM, J. 2018. University-industry collaborations and product innovation performance: the moderating effects of absorptive capacity and innovation competencies. *Journal of Technology Transfer*, 43, 1696-1724.
- PERKMANN, M., TARTARI, V., MCKELVEY, M., AUTIO, E., BROSTROM, A., D'ESTE, P., FINI, R., GUENA, A., GRIMALDI, R., HUGHES, A., KRABEL, S., KITSON, M., LLERENA, P., LISSONI, F., SALTER, A. & SOBRERO, M. 2013. Academic engagement and commercialisation: A review of the literature on university-industry relations. *Research Policy*, 42, 423-442.
- POPPO, L. & ZENGER, T. 2002. Do formal contracts and relational governance function as substitutes or complements? *Strategic Management Journal*, 23, 707-725.
- TABACHNICK, B. G. & FIDELL, L. S. 2007. *Using multivariate statistics*, Boston, MA, Pearson Education, Inc.
- THUNE, T. 2010. The Training of "Triple Helix Workers"? Doctoral Students in University-Industry- Government Collaborations. *Minerva*, 48, 463-483.
- TSENG, F.-C., HUANG, M.-H. & CHEN, D.-Z. 2020. Factors of university-industry collaboration affecting university innovation performance. *The Journal of Technology Transfer*, 45, 560-577.

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Examining Volunteering Behavior of Filipino Youth during COVID-19 Pandemic using an Extended Theory of Planned Behavior

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Abstract: Young people are vital human resources who can significantly contribute to social change through volunteerism. However, the COVID-19 pandemic has contributed greatly to changes in the social norms of daily living. Thus, this study sought to examine Filipino youth's volunteering behavior using an extended Theory of Planned Behavior with behavioral modeling by family and peers as additional antecedents of volunteering intention during the COVID-19 pandemic. Participants in this study were undergraduate students of De La Salle University – Manila, Philippines. A total of 438 students (60% females, 39% males, 1% prefer not to say), aged 17 to 23 years old ($M = 19.60$ years, $SD = 1.12$) answered an online survey conducted from August to September 2020. The scales were found to have good internal consistency reliability. Cronbach's values ranged from .757 to .936. Results showed that attitudes toward volunteering, perceived behavioral control, and peer modeling are significant predictors of volunteering behavior. The findings suggest that during a pandemic, Filipino youth are influenced the most by people who are important to them, specifically their peers, to volunteer for civic engagement activities. It is therefore recommended that the findings of this study serve as a basis for developing interventions or programs that would increase and encourage voluntary participation of Filipino youth in civic engagement activities even during a pandemic.

Key Words: volunteerism; Theory of Planned Behavior; Filipino youth; peer modeling; COVID-19 pandemic

1. INTRODUCTION

The novel coronavirus 2019 or COVID-19 was declared a global pandemic on March 11, 2020 by the World Health Organization. It heavily impacted, among others, the physical wellbeing and the social norms of daily living. As an example, employees, volunteers, and youth sport participants experienced emotional struggle brought about by the pandemic, with youth athletes experiencing a decline in positive health-related activities and

spending more time watching TV (Elliott et al., 2021). Some working class who experienced job loss due to the pandemic also lost a daily routine so others turned to volunteerism to regain their personal value (Jagannathan et al., 2021).

Volunteers are integral human resources of most events organizations in producing successful events (Bang et al., 2009). Nearly one billion people around the world volunteer through public, non-profit, or for-profit organizations (Salamon et al., 2011). Volunteering comprises activities undertaken

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of one's own free will, for the common good, and where monetary reward is not the main motivation (United Nations Volunteers, 2015). The United Nations Volunteers (1999) identified four types of volunteering activities, namely: mutual aid/self-help, philanthropy and service to others, civic participation, and advocacy and campaigning.

For most young adults, exposure to volunteering of various kinds begins in adolescence (Hill & den Dulk, 2013). One estimate suggests that as many as 75 percent of adolescents in the United States will participate in formal volunteering opportunities before adulthood (Hill, & den Dulk; Johnson et al., 1998). Moreover, the trend line for adolescent volunteering appears to be moving up. By mid-2000s, nearly a third of older teenagers, ages 16 to 19, reported some volunteering activity in a given year, a rebound of more than twice the volunteering rate for that age group in 1989 (Grimm et al., 2006). One data analysis suggests that 11 percent of 12th graders do volunteer on a weekly basis (Smith & Faris, 1999). In the global arena, the United Nations estimates that close to a thousand of their volunteers were under the age of 29, and of these, about 60 percent were female and 80 percent were from developing countries.

Volunteering has social and economic benefits to communities as it contributes to social capital (Virola & Reyes, 2011). Social capital includes "features of social organizations, such as networks, norms and social trust that facilitate coordination and cooperation for mutual benefit" (Putnam, 1995, p. 67). There is empirical evidence that communities with high social capital index are more likely to have high levels of educational performance, better child welfare, lower crime rates, better health, and better compliance with law (Putnam, 2001). It has also been shown that volunteering benefits also the volunteers themselves (Stukas et al., 2016). In particular, undergraduate volunteering has been linked to positive academic outcomes, such as students' aspiration for advanced degrees and actual attendance in graduate school, and to an increased sense of civic responsibility (Astin et al., 1999). Volunteering at the university level also helps develop various skills among students, including leadership ability, self-confidence, interpersonal skills, conflict resolution skills, and ability to work collaboratively and understand problems facing community and the nation (Astin & Sax, 1998). Even though these volunteers only provide supportive roles, they still

make important contributions to these organizations and the constituencies they serve (Edwards et al., 2001). Moreover, volunteering has the potential to increase students' well-being as it gives them a sense of purpose and brings about a range of positive emotions, and also improves their employability and soft skills such as communication skills, confidence, and time management (Williamson et al., 2017). Volunteering during a pandemic can reduce boredom, activate a sense of purpose, and improve mental health of the volunteers (Jagannathan et al., 2021).

With the benefits of student volunteering, educational institutions should enhance the students' volunteerability by developing programs that provide volunteering opportunities and by providing service learning courses (Haski-Leventhal et al., 2010). In developing a customized service learning framework for De La Salle University-Dasmariñas, Alcartado et al. (2017) found that students enrolled in the Religious Education course had participated in community activities which had positively affected both students and communities involved. A study on Korean college students enrolled in service learning courses revealed that students with higher intrinsic motivation to serve had more confidence in purpose after doing service-learning-related activities (Shin et al., 2018).

A few studies had examined adolescent volunteering in the Philippines (e.g., Kinyua, 2017; Lalap et al., 2013; Llenares & Deocar, 2015). In a study of family influences on the lifestyle of Filipino adolescents, Cruz et al. (2001) found that a strong, stable and intact family environment is associated with fewer risk behaviors such as smoking and drinking. None of these studies, however, used a specific theoretical or conceptual framework to explain why Filipino adolescents engage in such volunteering behavior. Moreover, there are limited studies on youth volunteerism during a pandemic. Rosychuk et al. (2008) predicted willingness to volunteer during a future influenza pandemic but they sampled students and staff of a Canadian university. There is also a dearth of studies that examine family and peer influences on prosocial behaviors, particularly volunteering behavior, of Filipino adolescents. This study therefore aims to examine volunteering among Filipino youth through the lens of an extended Theory of Planned Behavior (TPB) model, that include family and peer modeling as precursors of intention to volunteer, during a pandemic.

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2. METHODOLOGY

2.1 Participants

Participants in this study were undergraduate students of De La Salle University – Manila, Philippines (DLSU). A total of 438 students (60% females, 39% males, 1% prefer not to say), aged 17 to 23 years old ($M = 19.60$ years, $SD = 1.12$) participated in the study.

2.2 The Survey Instrument

The researchers developed a TPB Volunteerism Scale to measure participants' intention to volunteer, perceived subjective norms, perceived behavioral control, and attitudes toward volunteering using the guidelines provided by Fishbein and Ajzen (2010). All items were based on the literature on volunteering behavior and TPB, and no specific activity was identified in the said instrument.

1. *Intention to Volunteer.* Students' intention to volunteer in civic engagement activities was measured using a three-item scale. Participants indicated their degree of agreement to each item using a 6-point Likert agreement scale (1 = strongly disagree to 6 = strongly agree). A sample item was "I intend to volunteer in civic engagement activities (e.g., participate in charity events) in the near future."

2. *Attitudes Toward Volunteering.* Students' attitudes toward volunteering were measured using a six-point evaluative semantic differential scale. Participants chose between pairs of adjectives to indicate their response to this statement: "My volunteering in civic engagement activities would be (e.g., good vs. bad; pleasant vs. unpleasant).

3. *Subjective Norms.* Students' normative beliefs about volunteering were measured using a three-item scale. Participants indicated their degree of agreement to each item using a 6-point Likert scale (1 = strongly disagree to 6 = strongly agree). A sample item was "If I volunteer in civic engagement activities, most people who are important to me would approve."

4. *Perceived Behavioral Control.* Students' perceptions about how much control they had over their own volunteering were measured using a three-item scale. Participants indicated their degree of agreement to each item using a 6-point Likert

scale (1 = strongly disagree to 6 = strongly agree). A sample item was "I think I am capable of volunteering in civic engagement activities."

5. *Family Modeling.* Family modeling was measured using items adapted from the study of Law and Shek (2009). Participants were asked to indicate their degree of agreement to seven items (e.g., My family members actively participate in volunteer activities) using a 6-point Likert scale, 1 = strongly disagree to 6 = strongly agree.

6. *Peer Modeling.* Peer modeling was measured using seven agreement-type items (e.g., My friends actively participate in volunteer activities), with a 6-point Likert scale, 1 = strongly disagree to 6 = strongly agree.

2.3 Procedures

The researchers obtained ethics clearance from the DLSU Research Ethics Office (REO) to proceed with data gathering. Permission from the Lasallian Core Curriculum Office (LCCO) Director and respective faculty members were obtained to administer the questionnaire to Lasallian Studies classes. The online questionnaire was distributed through AnimoSpace, the official learning management system of DLSU, from August to September 2020.

2.4 Data Analysis

The researchers first generated descriptive statistics, intercorrelations, and reliability coefficients of the scales. To test applicability of original and extended TPB models to predict volunteerism, structural equation modeling (SEM) was used. In the original TPB model of Ajzen (1991), attitude, subjective norms, and perceived behavioral control were considered as predictors of intention to volunteer. In the extended model, predictors of intention to volunteer were attitude, subjective norms, perceived behavioral control, and family and peer modeling.

Model fit was assessed using a combination of fit indices, as recommended by Hu and Bentler (1999). The χ^2 goodness-of-fit index was generated, but because this fit index is sensitive to large sample sizes, other fit indices were also obtained. Two incremental fit indices, the Tucker Lewis Index (TLI) and the Comparative Fit Index (CFI), and two absolute fit indices, namely, the Root Mean Square Error of Approximation (RMSEA) and the

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Standardized Root Mean Square Residual (SRMR) were used in this study and a 90% confidence interval was reported for the RMSEA. All statistical analyses were performed using Muthen and Muthen's Mplus version 8.4 (2017).

3. RESULTS AND DISCUSSION

The present study seeks to examine Filipino youth's volunteering behavior during a pandemic using an extended Theory of Planned Behavior with behavioral modeling by family and peers as additional antecedents of volunteering intention. Results showed that attitudes toward volunteering, perceived behavioral control, and peer modeling can significantly and positively predict volunteering intention. This provides guidance to universities and civic-related groups and organizations that the said three variables are the relevant factors to consider when recruiting volunteers and encouraging youth participation in civic engagement activities during a pandemic. Thus, activating a synergy among these variables could further increase the tendency of youth to volunteer and be more inclined to sign up for volunteering activities even during a pandemic.

Another major contribution of this paper is providing evidence on the significant influence of peer modeling on intention to volunteer, which highlights the importance of friends in encouraging participation in volunteering activities. The results are aligned to previous studies (Van Goethem et al., 2014; Taylor-Collins et al., 2019) which noted that the tendency to participate in similar activities as your friends is high among adolescents and has a greater impact for these youth to volunteer compared to a family member's participation. A possible reason could also be the pandemic wherein people experience isolation due to quarantine protocols, thus, there is a sense of longing to do common activities with friends. Meanwhile, Rosychuk et al. (2008) related the significant positive attitudes toward volunteering to a moral, ethical, or professional duty to care in times of a pandemic, while Jagannathan (2021) related positive attitudes to a selfless attitude to serve and to an opportunity to earn an honorarium in order to sustain household expenses caused by job loss during the COVID-19 pandemic. Designing activities that promote a positive attitude towards

volunteering and providing various volunteering venues for students are expected to make it easier for students to volunteer as this will heighten their control over the behavior.

As regards the original TPB predictors of volunteering intention, our study supports the findings of Greenslade and White (2005) and Reuveni and Werner (2015) that intention to volunteer is significantly predicted by attitude towards volunteering and perceived behavioral control. Moreover, Marzana et al. (2015) found that attitudes toward volunteering are influenced by the quality and quantity of previous experiences and therefore these can be used as effective tools to promote the youth's social participation.

This study's subjective norms being an insignificant predictor of intention to volunteer might be ironically explained by the findings of Reuveni and Werner (2015) that subjective norm is a significant predictor that may be attributable to age which means that the younger the person is, the more their willingness to volunteer leans on external factors such as family and friends. This present study focused on college students, while Reuveni and Werner's study focused on ninth grade students which might have affected the results. The result of this study is also contrary to other previous researches (Greenslade & White, 2005; MacGillivray & Lynd-Stevenson, 2013; Veludo-de-Oliveira, et al., 2013) and Azjen's TPB framework in 1991 that subjective norms, coupled with attitudes, bring about perceived behavioral control that results in stronger behavioral intent.

In contrast, Taylor-Collins et al. (2019) found a significant positive relationship between a parent's/guardian's participation and their children's participation in social action, more likely due to the support and encouragement that adolescents need from their families. This was the same finding of Elliott et al. (2021) and related it to familial reconnection during COVID-19 pandemic. A volunteering study among Spanish children also found a positive relationship between willingness to volunteer and parental modeling in that the parents' volunteering activity has a strong influence on their children's civic commitment especially at a young age and declines when children become older due to environmental factors like school, friends, and media (Mainar et al., 2015). Similar to subjective norms, age of survey respondents might have

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contributed to parental modeling being an insignificant predictor of willingness to volunteer among Filipino youth. Other researches with conflicting results from this study are Law and Shek (2009), McGinley et al. (2010), Ottoni-Wilhelm et al. (2014), and Van Goethem et al. (2014).

4. CONCLUSIONS

This study explored the impact of behavioral modeling of peers and family members on the volunteering intention of Filipino youth by extending the Theory of Planned Behavior during a pandemic. This study found that attitudes toward volunteering, perceived behavioral control, and peer modeling are significant predictors of volunteering intention and are the relevant factors to consider when encouraging youth participation in civic engagement activities during a pandemic.

In particular, this insight can aid universities, colleges, civic organizations, and other local and international institutions in crafting the right communication content when targeting younger people to join civic engagement activities. For instance, marketing collaterals that highlight the joy of joining activities together with peers will send a strong message to the target participants. It is also suggested that social networking sites (SNS) such as Facebook and Twitter be utilized as young people who are members of SNS are more willing to volunteer compared to those who use the Internet for entertainment purposes (Filsinger & Freitag, 2019), while Zoom and Facetime should be used with precaution as not all volunteers have digital literacy skills to connect online (Elliott et al., 2021).

In addition, institutions should remove the barriers and provide more accessible opportunities and support for the youth to develop habit of being involved in social action which can then develop a culture of social action as the norm (Taylor-Collins et al., 2019). In particular, the youth can be involved in civic engagement projects where they need to collaborate with others, especially adults, to experience discussing ideas with them and to feel a sense of community or association (Marzana et al., 2015). For schools

with service learning courses, it is recommended to include a reflection of one's experiences in volunteering activities and to redesign service learning curriculum to provide students the opportunity to address their intrinsic motivation (Shin et al., 2018).

Future research is recommended to explore the rationale why subjective norms and family modeling turned out to be insignificant predictors of volunteering intention and whether additional variables such as altruism should be added to the proposed model. Since age was noted as a probable factor for discrepancy of results, it is also recommended to test if differing individual youth characteristics affect intention to volunteer. In addition, a different set of sample population or a longitudinal analysis can also be performed to shed more light on the volunteering behavior of Filipino youth during and after a pandemic. Finally, the conversion from intention to actual behavior is still a gap that ought to be addressed.

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6. REFERENCES

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.
- Alcartado, P. S., Camarse, M. G., Legaspi, O. M., Mostajo, S. T., & Buenaventura, L. C. L. (2017). Developing a pedagogical model of service learning: The De La Salle University-Dasmariñas experience. *Journal of Institutional Research South East Asia*, 15(2), 31-56.
- Astin, A. W. & Sax, L. J. (1998). How undergraduates are affected by service participation. *Higher Education*. Retrieved from

2021 ASEAN UNIVERSITY NETWORK BUSINESS AND ECONOMICS VIRTUAL CONFERENCE

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Resilient Business Environment and Innovation Ecosystem in the ASEAN"

- <http://digitalcommons.unomaha.edu/slcehigher-ed/7>
- Astin, A. W., Sax, L. J., & Avalos, J. (1999). Long-term effects of volunteerism during the undergraduate years. *Higher Education*. Retrieved from <http://digitalcommons.unomaha.edu/slcehigher-ed/88>
- Bang, H., Won, D., & Kim, Y. (2009). Motivations, commitment, and intentions to continue volunteering for sporting events. *Event Management*, (13), 69-81.
- Cruz, G. T., Laguna, E. P., & Mejia-Raymundo, C. (2001). Family influences on the lifestyle of Filipino youth. *East-West Center Working Paper No. 108-8*. Retrieved from <http://scholarspace.manoa.hawaii.edu/bitstream/10125/3632/1/POPwp10808.pdf>
- Edwards, B., Mooney, L., & Heald, C. (2001). Who is being served? The impact of student volunteering on local community organizations. *Nonprofit and Voluntary Sector Quarterly*, 30, 444-461.
- Elliott, S., Drummond, M. J., Prichard, I., Eime, R., Drummond, C., & Mason, R. (2021). Understanding the impact of COVID-19 on youth sport in Australia and consequences for future participation and retention. *BMC Public Health*, 21 (1), 1-16.
- Filsinger, M., & Freitag, M. (2019). Internet use and volunteering: Relationships and differences across age and applications. *Voluntas*, 30, 87-97.
- Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach*. New York: Psychology Press.
- Greenslade, J. H., & White, K. (2005). The prediction of above-average participation in volunteerism: A test of the theory of planned behavior and the volunteer's functions inventory in older Australian adults. *The Journal of Social Psychology*, 145 (2), 155-172.
- Grimm, R., Dietz, N., & Foster-Bey, J. (2006). Volunteer growth in America: A review of trends since 1974. Corporation for National and Community Service.
- Haski-Leventhal, D., Meijs, L.C., & Hustinx, L. (2010). The third-party model: Enhancing volunteering through governments, corporations and educational institutes. *Journal of Social Policy*, 39, 139-158.
- Hill, J. P., & den Dulk, K. R. (2013). Religion, Volunteering, and Educational Setting: The Effect of Youth Schooling Type on Civic Engagement. *Journal for the Scientific Study of Religion*, 52 (1), 179-197.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6, 1-55.
- Jagannathan, A., Thekkumkara, S. N., Thirthalli, J., Kasi, S. A. (2021). A community participation initiative during COVID-19 pandemic: A case study from India. *Indian Journal of Psychological Medicine*, 43 (2), 154-157.
- Johnson, M. K., Beebe, T., Mortimer, J. T., & Snyder, M. (1998). Volunteerism in adolescence: A process perspective. *Journal of Research on Adolescence*, 8 (3), 309-332.
- Kinyua, M. Z. (2017). Volunteerism among Filipino college students. *International Journal of Science Arts and Commerce*, 1, 34-42.
- Lalap, B. A., Dy, M. R., Saguiguit, S. L. C., & Dizon, T. (2013). Adolescent Volunteerism and its Contributions to Social and Moral Development as Perceived by the UPLB Ugnayang Pahinungod Student Volunteers. *Journal of Human Ecology*, 1 (2).
- Law, B. M., & Shek, D. T. (2009). Family influence on volunteering intention and behavior among Chinese adolescents in Hong Kong. *Adolescence*, 44, 665-683.
- Llenares, I. I., & Deocarís, C. C. (2015). Motivations for volunteerism among Filipino college students. *International Journal of Education and Research*, 3, 599-610.

2021 ASEAN UNIVERSITY NETWORK BUSINESS AND ECONOMICS VIRTUAL CONFERENCE

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Resilient Business Environment and Innovation Ecosystem in the ASEAN"

- MacGillivray, G. S. & Lynd-Stevenson, R. M. (2013). The revised theory of planned behavior and volunteer behavior in Australia. *Community Development, 44*, 23-37.
- Marzana, D., Vecina, M. L., Marta, E., & Chacon, F. (2015). Memory of the quality of group experiences during childhood and adolescence in predicting volunteerism in young adults. *Voluntas, 26*, 2044-2060.
- Mainar, I. G., Servos, C. M., & Gil, M. I. S. (2015). Analysis of volunteering among Spanish children and young people: Approximation to their determinants and parental influence. *Voluntas, 26*, 1360-1390.
- McGinley, M., Lipperman-Kreda, S., Byrnes, H. F., & Carlo, G. (2010). Parental, social and dispositional pathways to Israeli adolescents' volunteering. *Journal of Applied Developmental Psychology, 31*, 386-394.
- Ottoni-Wilhelm, M., Estell, D. B., & Perdue, N. H. (2014). Role-modeling and conversations about giving in the socialization of adolescent charitable giving and volunteering. *Journal of Adolescence, 37*, 53-66.
- Putnam, R. (1995). Bowling alone: America's declining social capital. *Journal of Democracy, 6*(1), 65-78.
- Putnam, R. (2001). Social capital: Measurement and consequences. *Canadian Journal of Policy Research, 2*(1), 41-51.
- Reuveni, Y., & Werner, P. (2015). Factors associated with teenagers' willingness to volunteer with elderly persons: Application of the Theory of Planned Behavior (TPB). *Educational Gerontology, 41*, 623-634.
- Rosychuk, R. J., et al. (2008). Willingness to volunteer during an influenza pandemic: Perspectives from students and staff at a large Canadian University. *Influenza and Other Respiratory Viruses, 2*, 71-79.
- Salamon L. M, Sokolowski W.S., & Haddock M.A. (2011). Measuring the economic value of volunteer work globally: concepts, estimates, and a roadmap to the future. *Annals of Public and Cooperative Economics, 82*, 217-252.
- Shin, J., Kim, M.S., Hwang, H., and Lee, B.Y. (2018). Effects of intrinsic motivation and informative feedback in service-learning on the development of college students' life purpose. *Journal of Moral Education, 47*(2), 159-174.
- Smith, C, & Faris, R. (1999). Correlation found between religiosity and community service. Available at <http://www.youthandreligion.org/news/6-4-2002.html>, accessed February 17, 2016.
- Stukas, A. A., Snyder, M. & Clary, E. G. (2016). Understanding and encouraging volunteerism and community involvement. *The Journal of Social Psychology, 156*, 243-255.
- Taylor-Collins, E., Harrison, T., Thoma, S. J., & Moller, F. (2019). A habit of social action: Understanding the factors associated with adolescents who have made a habit of helping others. *Voluntas, 30*, 98-114.
- United Nations Volunteers (UNV) (1999). Volunteering and social development: A background paper for discussion at an Expert Group Meeting. In: *United Nations Volunteers. Expert Group Meeting New York 29-30 November 1999*. Bonn: UNV.
- United Nations Volunteers (2015). *State of the world's volunteering report: Transforming governance*. Denmark: UNV.
- Van Goethem, A. A., Van Hoof, A., Van Aken, M. A., de Castro, B. O., & Raajimakers, Q. A. (2014). Socialising adolescent volunteering: How important are parents and friends? Age dependent effects of parents and friends on adolescents' volunteering behaviours. *Journal of Applied Developmental Psychology, 35*, 94-101.
- Veludo-de-Oliveira, T., Pallister, J. G., & Foxall, G. R. (2013). Accounting for sustained volunteering by young people: An expanded TPB. *Voluntas, 24*, 1180-1198.
- Viola, R. A., & Reyes, C. M. (2011). *Measuring the economic contribution of volunteer work: The*

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Philippine experience. Paper presented during
the 58th World Statistical Congress, Dublin.
Williamson, I., Wildbur, D., Bell, K.,
Tanner, J., & Matthews, H. (2017).
Benefits to university students through
volunteering in a health context: A new
model. *British Journal of Educational*

Studies,
10.1080/00071005.2017.1339865.

DOI:

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Job satisfaction and administrative capability among employees in higher education institutions in Sulu

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Norena S., Sarahadil, DPA, Jimsiok C. Asid, DPA, Zhiraida A. Daud, MPA

1. INTRODUCTION

School heads administrative capabilities triggered the management activities of the school from its smallest component of student activities, teachers teaching activities, school curriculum, budgetary sustenance and other components that support to make the school performance viable to school community development which create vision to the success of the school goals and objectives. School heads can provide plan of activities to establish overall effective strategies supporting development to enhance achievement of the schools' vision, mission and goals. The school heads usually involved in the management and supervision strategies to provide the faculty, staff and other employees' essential duties and responsibilities to enhance the success of the school.

The school administrators entirely commissioned for effective management through useful capabilities based on knowledge, skills and strategic experiences to develop the job satisfaction of the employees. No matter what the school administrators' essential qualities are to improve the school culture, the employee's job satisfaction may contribute greatly to the success of attaining the school goals. The employees' motivation to generate job satisfaction which contributes to the innovative processes that school administrators desires to develop school performance.

Administrative capabilities of the school leaders is central to educational quality. Leadership is the ability to develop a vision for change, which leads to improvements in outcomes for learners and is based on shared values and robust evaluation of evidence of current practice

and outcomes. It mobilize, enable and support others to develop and follow through on strategies for achieving that change; Administrative capabilities of the administrators is involved in the operational implementation and maintenance of the practices and systems required to achieve this change. Those in, or aspiring to, promoted roles within the education system will develop increasing capability and capacity in relation to the kinds of roles outlined in the institution. These roles may include capability of the school administrator for team and line management. All leaders have a responsibility for ensuring the mobilization of inter-agency working across the learning community and beyond, particularly by building staff capability, in order to achieve positive outcomes for all learners.

Leaders in schools will have different areas of capability in addition to enhanced pedagogical skills, which may include curriculum leadership, departmental or faculty leadership, pastoral leadership, leadership in additional support provision, or leadership of school improvement priorities. They may have line management responsibility for a team of staff, lead a team delivering a specific area of provision, or a team involved in development activities. In taking their particular areas of responsibility forward, school leaders will work and contribute to the school improvement agenda, particularly in building a culture of job satisfaction among personnel, it is premise that the researcher will explore the job satisfaction and administrative capability among employees I Higher education Institution`s in Sulu.

Statement of the Problems

This study will answer the following questions:

1. What is the profile of the respondents in

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terms of age, educational attainment, length of service and field of specialization?

2. What is the job satisfaction among the employees in Higher Education Institutions in Sulu?
3. What is the extent of the administrative capabilities of the school administrator in Higher Education Institutions as perceived by the school employees?
4. Is there significant difference between the levels of job satisfaction among employees when the responses are categorized according to the profile of the employees in terms of educational attainment and length of service?
5. Is there significant difference between perceptions of the employees on the administrative capabilities of the school administrators of Higher Education Institutions when the data are grouped according to the profile of employees in terms of age, educational attainment and length of service?
6. Is there significant relationship between the level of job satisfaction and the administrative capabilities of the school administrators in Higher Education Institutions as perceived by the employees?

Hypotheses of the Study

This study was anchored on the following research null hypotheses.

1. There is no significant difference between the levels of job satisfaction of the employees in Higher Education Institutions when the responses are categorized according to the profile of the employees.
2. There is no significant difference between the perceptions of the employees on the administrative capabilities of the school

administrators of Higher Education Institutions when the data are grouped according to the employees' profile.

3. There is no significant relationship between the levels of administrative capabilities of the school administrators of Higher Education Institutions and the levels of administrative capabilities as perceived by the employees.

2. METHODOLOGY

Research Design

The researcher was used Descriptive survey in this study.

Research Locale

This study was conducted in Jolo, Sulu using selected employees of Higher Education Institutions such as: Sulu State College (SSC), Notre Dame of Jolo College (NDJC), Hadji Butu School of Arts and Trade (HBSAT), and Sulu College of Technology (SCT).

Respondents of the study

Selected employees of Higher Education Institutions was used as the respondents in this study.

Sampling Design

Since the study concerns the administrator's administrative capabilities of Sulu State College and the employees' job satisfaction of its employees, this study will utilize purposive sampling design in the selection of the respondents. All of the employees of Higher Education Institutions was used in the study

Research Instrument

This study was used checklist questionnaire patterned from the study of John Thomas Husman (2007). There are three sets of questions: the first set was inquired the profile of the respondents; the second set was inquired the employees' job satisfaction as influenced by the administrative capabilities of the school administrator. The third was inquired the

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administrative capabilities of school administrators based on the perception of employees in Higher Education Institutions;

Statistical Treatment of Data

The questionnaires was analyzed descriptively and inferentially by using SPSS *version 20* for computation of the raw data in order to answer the research questions.

3. RESULTS AND DISCUSSION

The finding disclosed 43 percent of the respondent were randomly selected from SSC; 30 percent came from NDJC; 14 percent each were taken from both SCT and HBSAT. Most of the respondents were aged from 41 years old and above composed of 49.7 percent; and respondent aged 30 year old and below made up the 18.6 percent. 47.5 percent of the respondents had earned Master Degree; 24.6 percent had only undergraduate degree; 17.5 percent had master degree and earned doctoral units; and 10.4 percent had finished Doctoral Degree. Respondents' length of service, shows that 41 percent have rendered services from 11 to 15 years; 23.5 percent have been in the service from 6 to 10 years; 18.6 percent rendered services from 5 years and below; and 16.9 percent have long been in the service for 16 years and above. Their Field of Specialization shows that 74.3 percent were neither English, Math, Science Nor Soc. Science and Home economic but rather can be opined as generalist. While 7.7 percent had specialization in Science; 7.1 percent had specialization in Mathematics; 6.6 percent were specialized in English; 3.3 percent on Social Sciences; and 1.1 percent had specialization in Home Economic.

The level of Job Satisfaction of the Employees on administrators' administrative capabilities in Higher Education Institutions in Sulu **was** statistically described in this study as "Satisfied". The extent administrators' administrative capabilities in Higher Education Institutions in Sulu generally described in this study as "to High Extent".

There was no significant difference exist among the perception of Level of Job Satisfaction of the Employees on Administrators' Administrative Capabilities in Higher Education Institutions in Sulu when classified according to educational attainment and length of service of Respondents.

There was no significant difference exist among the perception of the Employees on Administrators' Administrative Capabilities in Higher Education Institutions in Sulu when classified according to age, educational attainment and length of service of Respondents.

There was significant relationship exist among the perception on Level of Job Satisfaction and the Administrators' Administrative Capabilities in Higher Education Institutions in Sulu when as perceived by the school employees.

Based on the summary of findings presented above, the following conclusions were drawn:

1. The respondents were randomly selected from the different Higher education institutions in Sulu. Mostly the school employees were old and most of them have completed their master degree and most of them also can be said generalists in terms of specializations.
2. No significant differences can be seen among the perception of Level of Job Satisfaction of the Employees on Administrators' Administrative Capabilities in Higher Education Institutions in Sulu when classified according to educational attainment and length of service of Respondents and as well, There is no significant difference exist among the perception of the Employees on Administrators' Administrative Capabilities in Higher Education Institutions in Sulu when classified according to age, educational attainment and length of service of Respondents. As such the null hypotheses were then accepted.
3. There was significant relationship exist among the perception on Level of Job Satisfaction and the Administrators' Administrative Capabilities in Higher Education Institutions in Sulu when as perceived by the school employees. As such the null hypothesis is then rejected.

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6. REFERENCES

- Gardner, J.W. (2003). *On Leadership*. The Free Press.
- Hargreaves, A. (1997). Cultures of teaching and educational change. In M. Fullan (Ed.), *The challenge of school change*. Illinois: Skylight Training and Publishing.
- Hinde, Elizabeth R. (2003). *School Culture and Change: An Examination of the Effects of School Culture on the Process of Change*. Arizona State University West.
- Hinde, E. R. (2002). *Switching classes: Teachers' conceptualizations of change in their professional lives*. Unpublished doctoral dissertation. Arizona State University.
- Katz, R.L. (2009). *Skills of an Effective Administrator*. Harvard Business Review. Boston.
- Kouzes, J. and B. Posner. (2008). *The Leadership Challenge: How to Keep Getting Extraordinary Things Done in Organizations*, Jossey-Bass Publishers.
- Leithwood, Seashore Louis et al., 81-82
- Norton, M.S. (2004). *Effective Leadership for Effective Administration*. Allyn & Bacon.
- Peterson, K. and Deal T. (1998). How leaders influence the culture of schools. *Educational Leadership* 56 (1), 28-30.
- Sarason, S. (1996). *Revisiting "the culture of the school and the problem of change"*. New York: Teachers College Press.
- Yukl, G. (2009). *Leadership in Organizations*, Prentice-Hall.

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Effect of Corporate Entrepreneurship on Employee Innovative Characteristic Development Among Selected Companies in the Philippines

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Abstract: Developing an entrepreneurial mindset for the organization and its employees is a challenge as researchers stressed that enabling conditions and mechanisms trigger individuals' readiness for employee innovative characteristic development. The study focuses on the effect of corporate entrepreneurship on employees' innovative and intrapreneurial behavior since most literature tackled only the effects on the organizational setting and only a few have done studies about its effects on instilling innovativeness at the individual level.

Corporate entrepreneurship factors such as management support, work discretion, rewards/reinforcements, time availability, and organizational boundaries are the independent variables that are linked to the dependent variable, employees' innovative characteristic development. The characteristic development includes innovative behavior for idea exploration, idea generation, idea champion, and idea implementation; and intrapreneurial behavior that includes proactiveness, innovativeness, and risk-taking.

Employees working in a company that practices corporate entrepreneurship were surveyed and has revealed that corporate entrepreneurship factors, particularly time availability and work discretion, have effect on employees' innovative and intrapreneurial behavior. Both showed better effects than the rest of the factors toward the development of innovative behavior of an employee.

It can be concluded that employees do not show potential intrapreneurial behavior until management presents an opportunity to show those emerging behavior. The clear intention and commitment of the management to intrapreneurship is an antecedent to any entrepreneurial activities within the firm.

Key Words: Corporate entrepreneurship; innovative characteristic development; intrapreneurial behavior

1. INTRODUCTION

The enabling conditions and mechanisms trigger an individual's readiness for employee innovative characteristic development. Thus, employees from organizations with corporate entrepreneurship create a more entrepreneurial mindset that enables a higher chance of innovative and intrapreneurial behavior.

The study aims to determine the effect of corporate entrepreneurship on employees' innovative and intrapreneurial behavior based on how employees exhibit or manifest the said behaviors. Despite the vast amount of literature regarding corporate entrepreneurship, most of it tackled only the effect on the organizational setting and only a few have done studies on its effects on instilling innovativeness at the individual level.

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2. METHODOLOGY

To see if the activities of the companies allow employees to progress or allows them to develop the necessary skills in leading new projects, or even in starting their businesses, a total of 133 employees working in 16 companies from 6 industries practicing corporate entrepreneurship as respondents were surveyed using a non-probabilistic sampling.

Quantitative analysis and correlational research design were used as it focuses on two variables which are corporate entrepreneurship (CE) and employee innovative characteristic development (EICD), to find out if the two variables have a positive relationship between them. The approach would help understand if employees working in a company that practices corporate entrepreneurship will help employee innovative behavior and intrapreneurial behavior and determine its factors.

A total of 60 questions with 5 items for all the components of dependent and independent variables composed the survey questionnaires with a Cronbach's Alpha's coefficient of 0.868 bearing as minimum threshold for this ratio being 0.7.

Almost 75% of the respondents came from manufacturing and financial services, while the remaining 25% were from real estate, education, airlines/travel and FMCG industries. Majority of the respondent represented Sales, IT, Marketing and HR departments; the rest are from other support services/units. Given the natures and stature of the companies, chosen respondents are considered working in a corporate environment with entrepreneurial practices and that the involved companies do practice corporate entrepreneurship. Results then would also be applicable to different industries and companies around the Philippines.

The corporate entrepreneurship factor is the independent variable that is linked to the dependent variable, employees' innovative characteristic development. This includes a) management support, b) work discretion, c) rewards/reinforcements, d) time availability, and e) organizational boundaries, while innovative characteristic covers) innovative behavior and b) intrapreneurial behavior. Moreover, some sub-behavior factors determine its effect. These are: a) Idea exploration, b) idea generation, c)

idea champion, and c) idea implementation for innovative behavior. The intrapreneurial behavior, however, includes a) proactiveness, b) innovativeness, and c) risk-taking for intrapreneurial behavior.

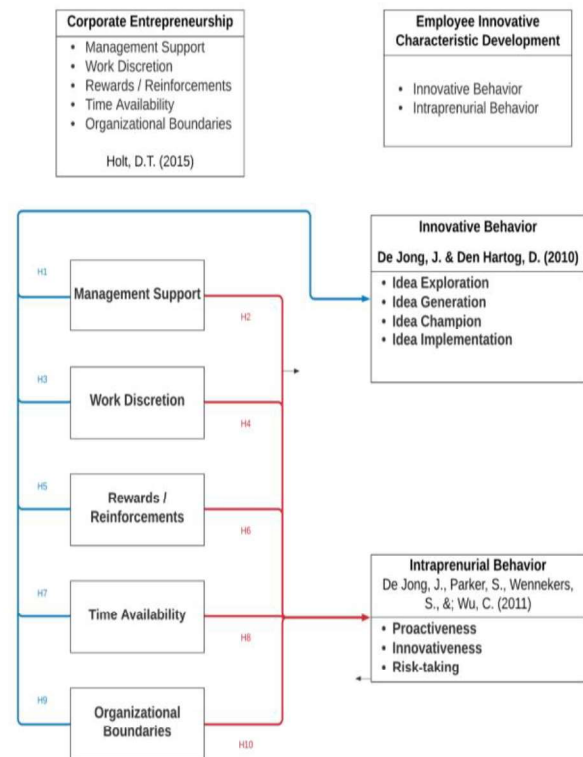


Fig. 1 Framework

The factors of corporate entrepreneurship include **management support** which plays a crucial role as an enabler for fostering intrapreneurial behavior within the organization (Urbano and Turro 2013), while **work discretion**, according to one of the studies stated that organizations that tolerate high horizontal participation of employees having broad and open-ended jobs, are positively related to an increase in entrepreneurial activities. (Åmo 2010; Rigtering and Weitzel 2013).

Rewards or reinforcement on the other hand give a signaling effect within the firm and emphasize such entrepreneurial activities as desirable for the organization (Kirby 2006; Menzel et al. 2007 as cited by Blanka, 2018). Then, **time**

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availability according to Hough (n.d.) is used to alter the workload so that there is sufficient time to carry out creative entrepreneurial experiments. The last factor is **organizational boundaries** and depending on the underlying organizational culture, intense integration may lead to intensive social ties with a negative effect on an organization's innovativeness (Brettel, Chomik, & Flatten, 2014).

The factors of innovative characteristic development present *innovative behavior* consisting of **idea exploration**, which is opportunity seeking of possible ways to improve current products, services, or processes or altering their thinking around them (Kanter, 1988; Farr & Ford, 1990; Basadur, 2004). **Idea generation**, on the other hand, requires experimentation, disrupts routines, challenges common assumptions, and is closely associated with explorative activities as stated by Sarooghi, Libaers & Burkemper (2015). The **idea championing** is the campaigning of the idea generated to management in hopes of their approval which includes both psychological capital and intrinsic motivation and an initiative mindset. Lastly, is the **idea implementation** which according to Ren & Zhang (2015) is a means of putting creative ideas into practice.

The other significant characteristic development is the *intrapreneurial behavior* which covers **proactiveness** as the pioneering behavior (Covin and Slevin, 1989) of a chanceseeking, progressive-looking perspective characterized by an acute awareness of trends and events in anticipation of it (Rauch et al., 2009). Then the **innovativeness** is the tendency to participate in creativity and experimentation through new products, (Rauch et al., 2009) but De Jong et al, (2011) adds that innovativeness is not limited to only new products, it can also be broader by including process-related innovations to bring new or efficient production or marketing methods or to apply new kinds of resources. Finally, **risk-taking** which is the act of making bold moves, by venturing to the unknown and risking significant resources in an undetermined environment. (Rauch et al., 2009)

3. RESULTS AND DISCUSSION

The study revealed that corporate entrepreneurship is present and has an effect on Employees' Innovative Behavior and Intrapreneurial Behavior especially on its two

dimensions: time availability and work discretion which showed better effects than the others towards the development of the aforementioned behaviors of an employee.

The factors of corporate entrepreneurship present various effects on both employee's innovative behavior and Intrapreneurial Behavior. As for **management support**, it says that the environment helps in enhancing the employees' participation in generating new ideas. An example would be companies designing an innovation manual and facilitating university-driven intervention can enhance the innovativeness of its employees (Parjanen, Saunila, Kallio & Harmaakorpi, 2020). **Work discretion** on the other hand improves time management and better performance. Work discretion limits the excessive oversight of managers and supervisors. (Page, 2010). Also, management with tolerance for failure and that gives autonomy to employees allows such employees to innovate, inhibit proactive behavior, and take risks. Nzilano (2014).

The effect of **rewards/reinforcement** motivates employees with recognition and rewards that encourage innovation. Employees tend to become more proactive, innovative, and risk-taking, when such behavior is rewarded. (Nzilano, 2014). It also tells that when behaviors are rewarded and enforced, employees naturally become more engaged in their work which results in the improvement of the quality of their work. An employee who is constantly engaged in their duties and responsibilities are likely to continue to manifest this kind of behavior as the organization rewards them. (Aggarwal, A., 2018).

Time availability's effect on employee innovativeness is explained by the provision of resources such as time, the employee can present entrepreneurial exploits that are otherwise subdued when an abundance of workload changes the priority of the employee, limiting their creative work. (Keat, 2012). Giving enough time to employees to support their entrepreneurial actions. To foster innovative behavior, organizations must evaluate the workloads of the employees to ensure that they have the time needed to pursue innovation (Nzilano, 2014).

Finally, the flexibility of **organizational boundaries** allows enhancement to the flow of

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information from external sources to the organization itself. It also frees employees from limiting themselves to the scope of their job. Group culture enhances communication flows and decentralized decision-making processes, which further drive innovativeness. This leads to the conclusion that a high degree of group culture will have a significant positive impact on innovativeness. High levels of trust and loyalty in group cultures may boost internal collaboration and knowledge exchange, increasing innovativeness and its proactiveness (Brettel, Chomik, & Flatten, 2014).

** Significant at the .01 level
* Significant at the .05 level

Table 1. Descriptive Statistics

Variable	Mean	SD	Score Classification
Management support	18.3534	3.7075	Present
Work discretion	17.4962	4.0873	Present
Rewards/Reinforcements	17.1203	4.2853	Present
Time availability	15.2256	3.5111	Present
Organizational boundaries	19.4135	3.2593	Somewhat Present

Table 3. Regression Analysis for Intrapreneurial Behavior

	Model Summaries		
	Proactiveness Model 5	Innovativeness Model 6	Risk-Taking Model 7
Adjusted R ²	0.2922	0.2608	0.2258
Standardized Coefficients			
Management Support	0.1104	0.0078	0.1535
Work Discretion	0.2117*	0.1633	0.2174*
Time Availability	0.2340*	0.2519*	0.2910**
Rewards/Reinforcements	0.0712	0.0501	-0.0494
Organizational Boundaries	0.0957	0.2069*	-0.0185

**Significant at the .01 level
* Significant at the .05 level

Table 2. Regression Analysis for Innovative Behavior

	Model Summaries			
	Innovative Behavior			
	Idea Exploration Model 1	Idea Generation Model 2	Idea Champion Model 3	Idea Implementation Model 4
Adjusted R ²	0.4269	0.3099	0.3230	0.2308
Standardized Coefficients				
Management Support	0.1539	0.0733	0.1882	0.1891
Work Discretion	0.2725**	0.0766	0.1384	0.0855
Time Availability	0.3242**	0.2790**	0.2256*	0.2465*
Rewards/Reinforcements	0.0858	0.2464*	0.2002*	0.0589
Organizational Boundaries	-0.0067	0.0341	-0.0165	0.0519

4. CONCLUSIONS

The clear intention and commitment of the management to intrapreneurship is an antecedent to any entrepreneurial activities within the firm and this develops employee innovative characteristics. It helps increasing innovativeness among its people and for the organization's benefit. As Holt (2015) stated that factors of corporate entrepreneurship are instruments in measuring entrepreneurial activities and outcomes. This is possible by allowing employees to freely budget time to come up with innovative solutions that help increase innovative behavior.

For factors with the least effect, further studies are needed to better understand how to utilize those factors in influencing employee's innovativeness. The following activities are, therefore, recommended or should be given attention:

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1. The management should encourage and support employees in developing their ideas for the improvement of the company.
2. Provision of incentives for excellent performance and innovation made for the company; and
3. Allow discussion/dialogue between the employees and their supervisor about work performance and provide rules and procedures to guide the employees on what to do in their job.

5. ACKNOWLEDGMENT

Grateful appreciation to co-authors from DLSU namely: Mr. Franco Luis F. Ganzon and Bernard Alfred A. Lim for their significant effort in completing the study.

6. REFERENCES

- Aggarwal, A. (2018). Entrepreneurship as a Strategic Development Intervention to Transform the Corporate Culture and Creating Values. SSRN Electronic Journal. <https://doi.org/10.2139/ssrn.3184125>
- Åmo, B.W. (2010). Corporate entrepreneurship and intrapreneurship related to innovation behaviour among employees', *Int. J. Entrepreneurial Venturing*, Vol. 2, No. 2, pp.144–158.
- Brettel, M., Chomik, C., & Flatten, T.C. (2019). How organizational culture influences innovativeness, proactiveness, and risk-taking: fostering entrepreneurial orientation in SMEs. <https://doi.org/10.1111/jsbm.12108>
- De Jong, J., Parker, S., Wennekers, S., & Wu, C. (2011, March). Corporate Entrepreneurship at the Individual Level. Retrieved August, from [http://www.nowybiznes.edu.pl/s/p/artykuly/90/903/Corporate ENT EIM 2011 Good.pdf](http://www.nowybiznes.edu.pl/s/p/artykuly/90/903/Corporate%20ENT%20EIM%202011%20Good.pdf)
- Hult, G. M., Hurley, R. F., & Knight, G. A. (2004). Innovativeness: Its antecedents and impact on business performance. *Industrial Marketing Management*, 33(5), 429-438. doi:10.1016/j.indmarman.2003.08.015
- Ishak, N.A. (2005). Promoting employees' innovativeness and organisational citizenship behaviour through superior-subordinate relationship in the workplace. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.733.9073&rep=rep1&type=pdf>
- Keat, K. (n.d.). Corporate entrepreneurship and employees' work performance: the impact of individual and organisational factors. Retrieved from http://eprints.usm.my/26457/1/CORPORATE_ENTREPRENEURSHIP_AND_EMPLOYEES'_WORK.pdf

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Appendix A

Relevant links to the conference

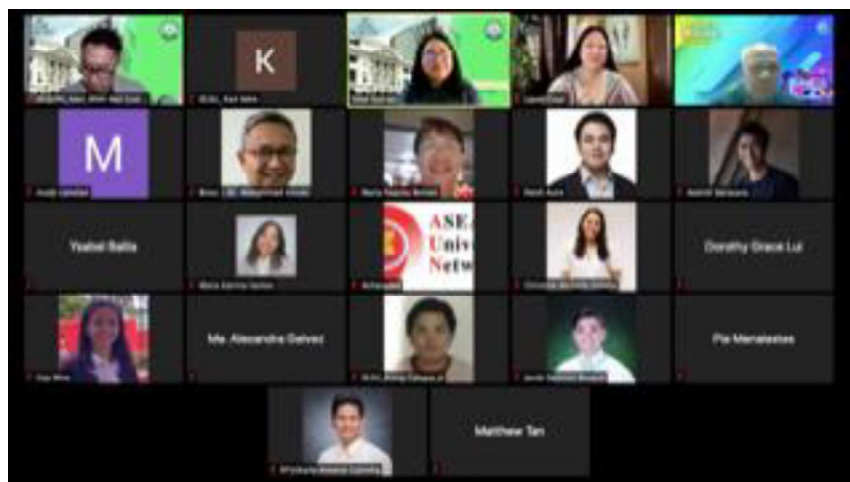
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Appendix B

Zoom Group Photos of Parallel Sessions



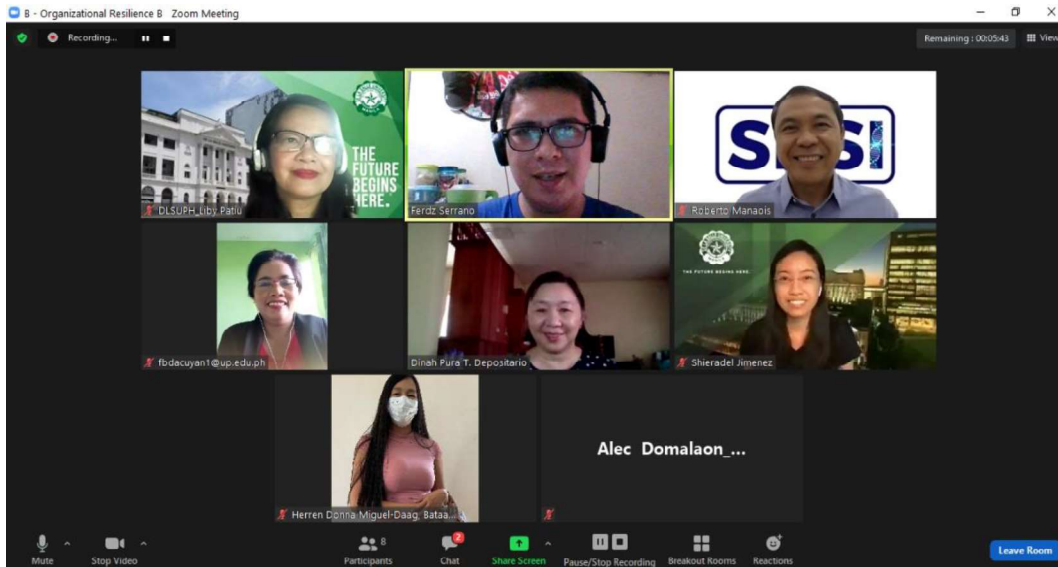
Parallel Session A: Organizational Resilience A

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Parallel Session B: Organizational Resilience B



Parallel Session C: Consumption

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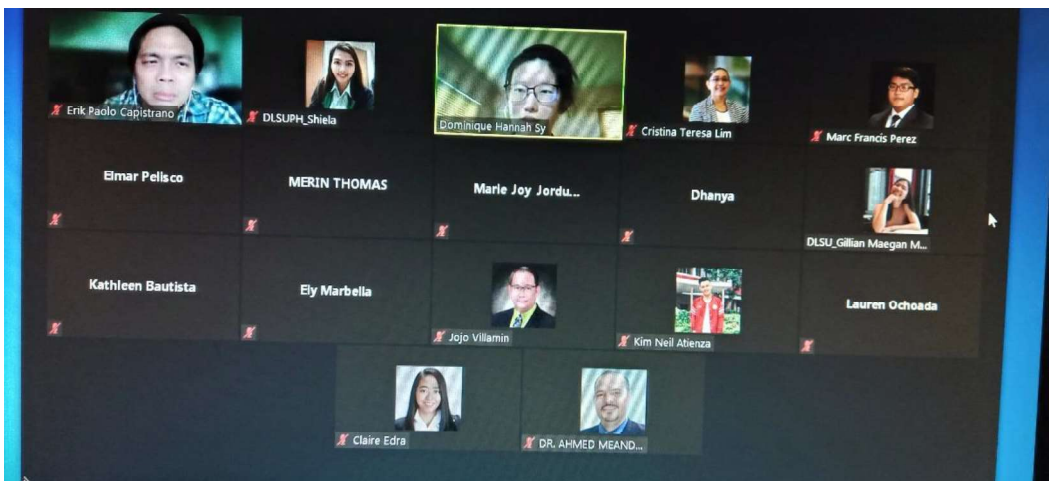
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Parallel Session E: Sustainability and Corporate Social Responsibility



Parallel Session F: Digitalization and Innovation

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Parallel Session G: COVID-19 and the Economy A



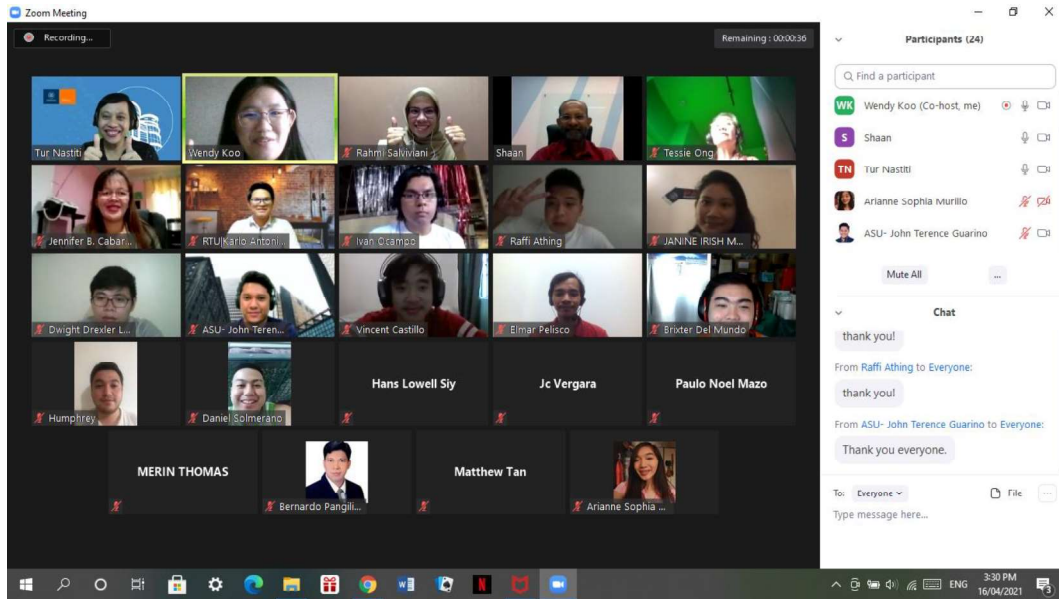
Parallel Session H: COVID-19 and the Economy B

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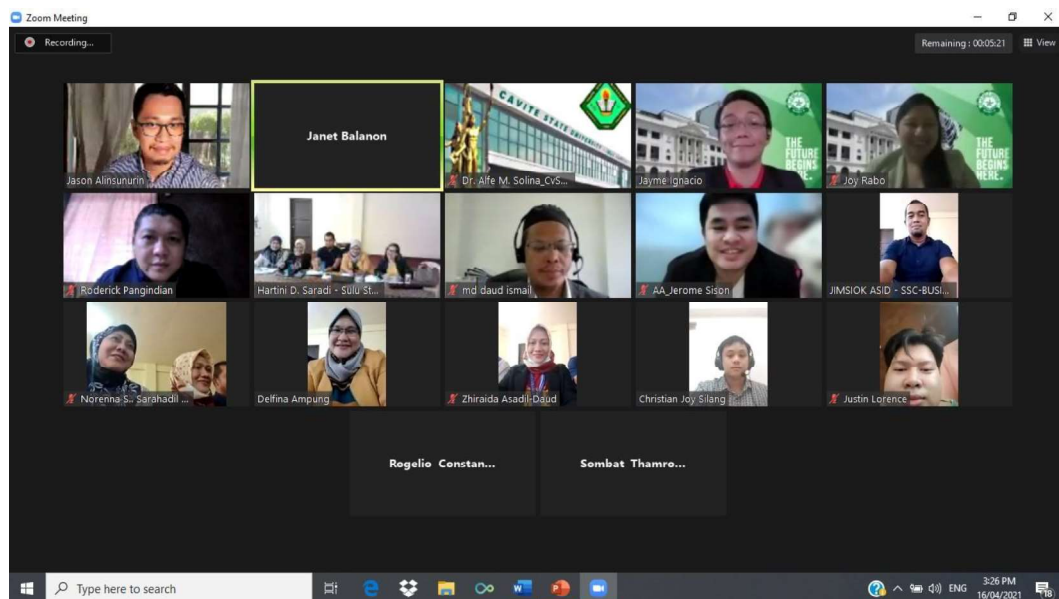
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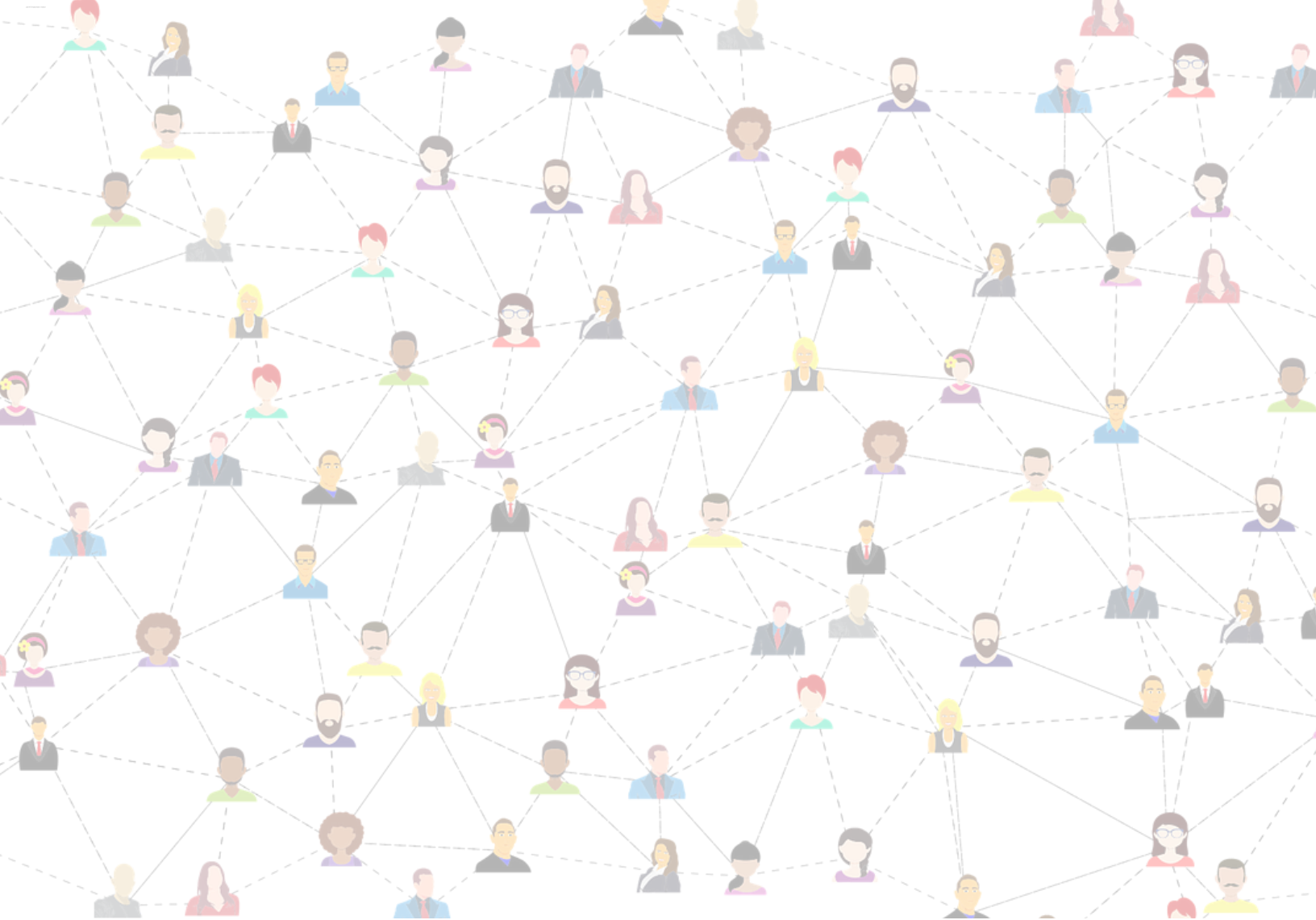
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Parallel Session I: Strategy during COVID-19



Parallel Session J: Other Relevant Topics on Business and Economics



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