DETERMINANTS OF RESILIENCY WITH ECONOMIC DYNAMISM AS A MEDIATING VARIABLE: EVIDENCE FROM THE CITIES AND MUNICIPALITIES IN THE PHILIPPINES

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Abstract

The COVID-19 pandemic, which started as a health crisis, is now causing an economic disaster for many countries worldwide. The national and local governments need to develop new policies and strategies to address this pandemic's adverse effects.

This causal research focuses on the 1,516 LGUS – 144 cities and 1,372 municipalities in the Cities and Municipalities Competitiveness Index (CMCI) database. Sectors such as financial, health services, transportation, tourism, and food and supply are among the segments that are considerably affected by the COVID-19 pandemic. This study examined whether those sectors are determinants of economic dynamism and resiliency, including economic dynamism as a mediating variable between the sectors and resiliency. The analysis was done by the type of the Local Government Unit (i.e., city and municipality). The dependent variable is the resiliency score of the units in 2019; the independent variables are the average composition of units under each sector from 2011 to 2018, and the economic dynamism score served as the endogenous variable. Structural Equation Modeling (SEM) is the primary statistical tool employed to analyze the data.

The study found that, among the cities, the highly urbanized ones have the most dynamic economy, and the independent component cities are the most resilient. Among the first to sixth-class municipalities, the third-class LGUs have the highest economic dynamism scores, while the first-class municipalities are the most resilient. The sixth-class municipalities have the lowest economic dynamism and resiliency scores. In addition, it was also found that the tourism sector is a significant determinant of economic dynamism of the LGUs under the city classification; however, it has no direct influence on resiliency. Its effect on resiliency is mediated by economic dynamism. For the LGUs under the municipality classification, the financial and transportation sectors were found to positively influence economic dynamism; however, their influence on resiliency is also indirect because the economic dynamism has established its mediation role between the variables. This study established the mediating effects of economic dynamism between some of the sectors under study and resiliency. For the tourism sector (for cities) and financial and transportation sectors (for municipalities) to significantly matter in an LGU's economic resiliency, their effects must first contribute to building a more dynamic economy, ultimately strengthening resiliency. Lastly, the health services sector was found to have a significant and direct influence on the municipalities' resiliency.

This study's results may be beneficial primarily to the national and local governments in designing their policies and strategies to align their focus on the sectors or industries that must be prioritized to revitalize economic dynamism and resiliency.

Keywords: Resiliency, Economic Dynamism, Mediation Effect, Determinants of Resiliency, Financial, Transportation, Health Services, Tourism, Food and Supply

I. Introduction

A. Background of the Study

The COVID-19 pandemic, which started as a health crisis, is now causing an economic disaster for many countries worldwide. The effects of the crisis are forecasted to extend even in the coming years. While many continue to study the potential impact of COVID-19, it is high time for the national and local government to develop new policies and strategies to address this pandemic's adverse effects. The concepts of resiliency in research are typically related to economic shocks. Constant fluctuation is a normal characteristic of an economy; however, when there are economic shocks due to unforeseen events, like this COVID-19 pandemic, it is essential to know the significant determinants of resiliency so that the government can focus on those aspects that must be improved to reestablish the economy after the shock.

Building better resiliency should be one of the objectives of the policy makers, coupled with risk analysis and assessment strategies, to recover from any unforeseen crisis. The COVID-19 pandemic has caused and continues to cause, significant and severe setbacks in the Philippine economy and globally, and measures must be developed and put in place to mitigate the difficulties (Abodunrin, 2020), and recover from this crisis. In the Philippines, the Regional Competitiveness Committees (RCC), created by the National Competitiveness Council, is in charge of the regular measurement of local competitiveness indicators, including economic dynamism and resiliency. The RCCs are also given responsibility in the formulation of programs for improved competitiveness. Lastly, the committees also take initiatives on the promotion of investment activities and attract investors, which will ultimately lead to the creation of jobs (Department of Trade and Industry, 2020a). The Cities and Municipalities Index (CMCI) is the indicator being used by the RCCs to measure the competitiveness of the government units in the Philippines. The four essential components of competitiveness are economic dynamism, government efficiency, infrastructure, and resiliency. This study covered two components only – economic dynamism and resiliency. Accordingly, the municipalities and cities are ranked according to their competitiveness index. The government units are divided into provinces, highly urbanized cities, component cities, 1st to 2nd class municipalities, and 3rd to 6th class municipalities.

A dynamic and robust economy is claimed to be more resilient (Fratesi and Rodriguez-Pose, 2016) as compared to those units with lesser economic dynamism before an economic stress. Innovation is also found to enhance regional resilience (Bristow & Healy, 2018). In the context of economic dynamism, various factors are also considered to be significant contributors, such as tourism (Chou, 2013; Khan, Bibi, Lorenzo, Lyu, & Babar, 2020), microfinance institutions (Murad & Idewele, 2017; Puatwoe & Piabuo, 2017), banks (Anh, 2020), and economic freedom (Barnatchez & Lester, 2017).

Sectors such as the financial services, health services, transportation, tourism, food, and supply services are the most affected in this time of crisis, which could also be related to economic dynamism and resiliency. It is all over the news that the pandemic has put these sectors into disadvantageous positions. This study finds the need to investigate what predicts a country's dynamic economy and whether it has something to do with resiliency. This study aims to examine whether the mentioned sectors are significant determinants of resiliency, as mediated by economic dynamism. In pressing times like these, the policymakers and the Philippine government must prioritize rebuilding its economy. The results of this study may help the local and national governments in prioritizing their initiatives.

B. Statement of Research Problem and Objectives

This study primarily aims to examine the resiliency determinants of the local government units in the Philippines, with economic dynamism as a moderating variable.

Specifically, it seeks to:

1. Determine the eight-year (2011-2018) average number of institutions operating under each of the following sectors:
    a. Financial Services,
    b. Health Services,
    c. Transportation,
    d. Tourism, and
    e. Food and Supply Services
2. Examine the 2019 economic dynamism of the LGUs in the Philippines;
3. Examine the 2019 resiliency of the LGUs in the Philippines;
4. Investigate the direct relationship between the sectors and economic dynamism;
5. Evaluate the determinants of resiliency with economic dynamism as a mediating variable.

C. Significance of the Study

The results of this study can be beneficial primarily to the Philippine government, both local and national. The COVID-19 pandemic has hit the country earlier this 2020. It has already been several months that people are living in the new normal. This new normal has made some changes that significantly affect the economy of the whole country. The national and local government units are looking for initiatives that could help recover from this economic shock and stress. This study's results could be beneficial to both the national and local government units of the country. This study examines the determinants of resiliency. The results will help the government formulate its strategies and prioritize their initiatives to counter the effect and recover from this crisis. The LGUs under both cities and municipalities classification may use this study to determine which sector to prioritize in the rehabilitation, bring back the economy before this pandemic hit the country, build a more dynamic one, and increase their recovery capacity. The national government may also use the results of this study to prioritize their initiatives and programs in the economic recovery and for better resiliency. Lastly, other researchers may use this study as part of their related literature or as base data to facilitate their investigation.

D. Scope and Limitations

This study was conducted in the Philippines. Its subjects are the local government units in the country that are classified as first-class to sixth-class, and independent component, component, and highly urbanized cities. The main objective is to examine the mediation effect of economic dynamism in the influence of the sectors that are significantly affected by COVID-19 on resiliency. The sectors include financial, health, tourism, transportation, and food and supply. The data about sectors is an eight-average (2011-2018), while data about economic dynamism and resiliency are related to the year 2019. The sectors served as independent variables. The economic dynamism is the endogenous variable, and resiliency is the dependent variable.

This study utilized pure secondary data from the CMCI database. One of the major limitations is the reliance on such. The accuracy of the data is beyond the control of this study. Lastly, there could be other significant determinants of resiliency that were not captured in the model used in this study.

II. Review of Related Literature

The concepts of resiliency can be applied using different perspectives, such as individual, community, company, region, province, and even the entire nation. In this context, it is the perspective of the Philippine local and national government. The CMCI resiliency indicator refers to the capacity of a locality to facilitate businesses and industries to create jobs, raise productivity, and increase the incomes of citizens over time despite the shocks and stresses it encounters" (Department of Trade and Industry, 2020b). It is also the regions' capacity to remain unaffected or less impaired in times of economic shocks and reestablish their status before the shock, through their effective economic and social systems, dynamic economy capacity, and infrastructure (Bruneckiene, Palekiene, Simanaviciene, & Rapsikevicius, 2018). The localities may experience various types of shocks and stresses, and resiliency is the ability of the locality to recover from the shocks through the creation of jobs, increased productivity, and increased income. The concept of resiliency has also been linked with the quality of the structure of an economy (Sondermann, 2018). Sondermann (2018) argued that both labor and market products must be strengthened, including business conduct, to improve resiliency. A unit with weak economic structures can suffer more in times of crisis compared to units with strong structures. Resiliency is also described in the regional economic perspective. Accordingly, it is the "ability of regions to resist and/or recover quickly from shocks —as well as the factors influencing it (Bristow & Healy, 2018, p. 266). Bristow and Healy (2018) have found in their studies that innovation is strongly related to regional economic resilience. They referred to innovation in the context of research, development, and technology, which are considered a source of new products and processes. Their finding is consistent with UK BIS (2014) argument that a dynamic and resilient economy is built through innovation. Hill et al. (2010) claimed that the economic structure of a region matters in its resiliency. They further noted that the labor market's flexibility and income disparity in a region has something to do with resiliency.

The notion of resiliency can also be tackled using the concepts of economic dynamism, which involves activities that create stability and improvement of businesses in the locality, which also involves high employment rates (Department of Trade and Industry, 2020b). As further explained by the Department of Trade in Industry (2020), economic dynamism relates to the entrepreneurs and financial institutions' joint effort in business expansion and creation of jobs. A more dynamic economy (job reallocation, job creation, establishment reallocation, and business entry creation) has also been linked to higher economic freedom, including government size, taxation, and labor market (Barnatchez & Lester, 2017). As further emphasized by Barnatchez and Lester (2017), in a dynamic economy, there are new products and businesses; old products are destroyed; old businesses are closed, and hiring and firing are parts of the cycle. This concept is related to the argument of the creative destruction of Decker et al. (2016), where the creation and destruction of jobs and businesses lead to employment growth, increased productivity, and improved living standards. When studying economic dynamism, job flows and the firm's entry and exit are normally covered.

Various studies have examined the predictors of economic growth, which could enhance resiliency. The tourism sector was found by Chou (2013) to be of great significance in the economic development of a country because the travel spending stimulates economic

dynamism. Consistent findings were documented by Maden et al. (2019) when they claimed a positive and significant association between the tourism sector and economic growth, both short-term and long-term. A similar notion was recommended by et al. (2020) that the tourism sector can advance the development of a country's economy, especially the emerging ones. The tourism industry has been steadily growing in the past years, locally and globally. It is one of the industries that create jobs, earn revenues, and add value to domestic economies. It is not just about visiting destinations but also about the other aspects of living, working, and investments (OECD, 2020). The financial system's size and performance were also found to significantly impact a country's economic growth and resiliency. Commercial banks are a significant factor in a country's economic growth (Anh, 2020). Microfinance was documented to have a short-term and long-term positive impact on a country's economic performance (Murad & Idewele, 2017). The findings of Puatwoe and Piabuo (2017) is also consistent that bank deposits and private investments can have a significant impact on economic growth in the long-run. Oyinpreye (2016) also documented that loans from microfinance banks are significant predictors of an economy. This could be because efficient financial systems can optimally allocate resources through the expansion of citizens' consumption, making more funds available to businesses and even the government (Herring & Santomero, 2013).

In another perspective, economic dynamism can have a potential impact on resiliency. Fratesi and Rodriguez-Pose (2016) claimed that when a country's economy is more sheltered before an economic shock or stress, the country can cope well and recover faster.

In the Philippines, the startup ecosystem has improved in 2019 with its 54th place out of 100 countries all over the world (Aguinaldo, 2019). The ranking included startups in the business environment, wherein Metro Manila was considered to be one of the main reasons of such improved performance. However, as further emphasized by Aguinaldo (2019), despite such performance, two factors still continued to hinder the growth of the startup ecosystem in the country – "lack of startup entrepreneurship" and lack of a "conservative business mindset." Nonetheless, there are programs on entrepreneurship that are being implemented by the Philippine government to address the barriers. Such programs were launched by the government to further increase the number of businesses in the country.

In 2017, the Philippine Startup Survey was launched by the PriceWaterhouseCoopers where it was found that the majority of the respondents are in their business' early stage, and the government's Ease of Doing Business Act and Revised Corporation Code has helped in such development (PriceWaterhouseCoopers, 2020). It was also documented that in 2020 one of the tops skills of those who founded the businesses is entrepreneurship, as compared to the result of the 2017 survey, wherein software development topped. In addition, 84% of the respondents established their ventures between 2016 and 2019, and 95% of them planned to start business at new territories, prioritizing the Philippine market.

Given the preceding literature, it can be seen that there was an improvement in the business startup initiatives in the Philippines, several years before the pandemic hit the country. Despite the challenges, economic dynamism in the country is promising. In addition, with extant literature about economic dynamism and resiliency, it can be inferred that there are various determinants of the two variables, but very few studies have linked economic dynamism with resiliency, and none of the studies mentioned have investigated on the potential mediation role of economic dynamism between the economic sectors and resiliency. In this time of pandemic, the economy of the entire country has been put in a very disadvantageous position, and while the crisis is still happening and even after it has already

ended, the government must formulate various strategies to cope up and recover. Determining the predictors of economic dynamism and resiliency can help formulate strategies and programs for the country's economic recovery and resiliency.

III. Methodology

This section presents the variables and their indicators, research design and methods, and the statistical test and parameters used in this study.

A. Variables and Measures/Concept and Indicators

Table 1 shows the variables included in this study and their corresponding measures.

Table 1. Variables and their measures.

Variables	Measures
Independent	
Financial Services Sector (FINANCIAL)	Average number of financial services institutions for the last eight years*, which include banks and microfinance institutions (MFIs)
Health Services Sector (HEALTH)	Average number of health services personnel (doctors, nurses and midwives) and institutions (clinic, center, hospital) for the last eight years
Transportation Sector (TOURISM)	Average number of tourism services institutions (hotels, inns and resorts) for the last eight years
Tourism Sector (TRANSPO)	Average number of transportation services (bus, jeeps, taxis, tricycles, and vans) and frequency of trips for the last eight years
Food and Supply Services Sector (FOOD & SUPPLY)	Average number of food and supply services institutions (convenience stores, supermarkets, drug stores and fast-food chains) for the last eight years
Endogenous	
Economic Dynamism (EDS)	2019 Economic dynamism scores
Dependent	
Resiliency (RESS)	2019 Resiliency scores

**the eight-year average is from 2011-2018.*

Accordingly, there are three types of variables included examining the determinants of resiliency. The independent variables included the five sectors, such as financial, health services, tourism, transportation, and food and supply services. All the mentioned independent variables were measures by getting the average number of units or institutions under them for the past eight years, 2011-2018. The endogenous variable, economic dynamism, which is measures through the economic dynamism scores of the LGUs, served as both dependent and independent variables in the model used in this

study. Lastly, the dependent variable, resiliency, is measured using the resiliency scores of the LGUs.

B. Research Design and Methods

This study is casual research as it aims to examine the cause and effects between the variables covered. Pure secondary data has been utilized, particularly the CMCI Data, which was given the Department of Trade and Industry (DTI). All the local government units in the database are included in this study, yielding 1,516 subjects. There are nine classifications of the Philippines' local government units – classes such as first, second, third, fourth, fifth, and sixth, and cities such as component, highly urbanized, independent component. The eight-year average number of units (personnel or institutions) was derived first, then the economic dynamism and resiliency scores were lifted from the database. A structural equation model was then developed and ran using the SmartPLS software (Ringle, Wende & Becker, 2015).

C. Statistical Test and Parameters

Descriptive statistics such as means, standard deviations, min, and max were presented first to describe the basic features of the LGUs. Graphs were also provided to show the mean scores of the LGUs belonging to each classification mentioner earlier.

The main statistical tool used to analyze the data is the Structural Equation Modeling (SEM). This study employed the Partial Least Square (PLS-SEM) because there is little apriori knowledge on the mediating role of economic dynamism in influencing the different economic sectors on resiliency. Under the SEM, latent variables are expressed using observed indicators, such as those presented in Table 1. This study analyzed the relationships simultaneously (sectors, economic dynamism, and resiliency). Unlike the multiple regression, where a model is specified for every regression equation developed, the SEM will provide a whole picture of the entire relationships, as shown in Figure 1.

Figure 1 shows the structural equation model results from the SmartPLS for the mediating role of economic dynamism between the sectors and resiliency. Accordingly, 12 path coefficients were analyzed – (1) financial to economic dynamism, (2) financial to resiliency, (3) health to economic dynamism, (4) health to resiliency, (5) tourism to economic dynamism, (6) tourism to resiliency, (7) transportation to economic dynamism, (8) transportation to resiliency, (9) food and supply to economic dynamism, (10) food and supply to resiliency, (11) economic dynamism to resiliency, and (12) sectors to economic dynamism to resiliency. These paths can also be seen in Figure 1.

There are seven (7) latent variables that include the sectors (financial, health, tourism, transportation, and food and supply), economic dynamism, and resiliency. The financial sector is represented by the observed variables, banks, and MFIs. In the original model, money changer and pawnshops were included; however, the model yielded high Variance Inflation Factors (VIFs), which is the reason why the variables were removed. The health services sector is represented by the personnel (public and private doctors, nurses

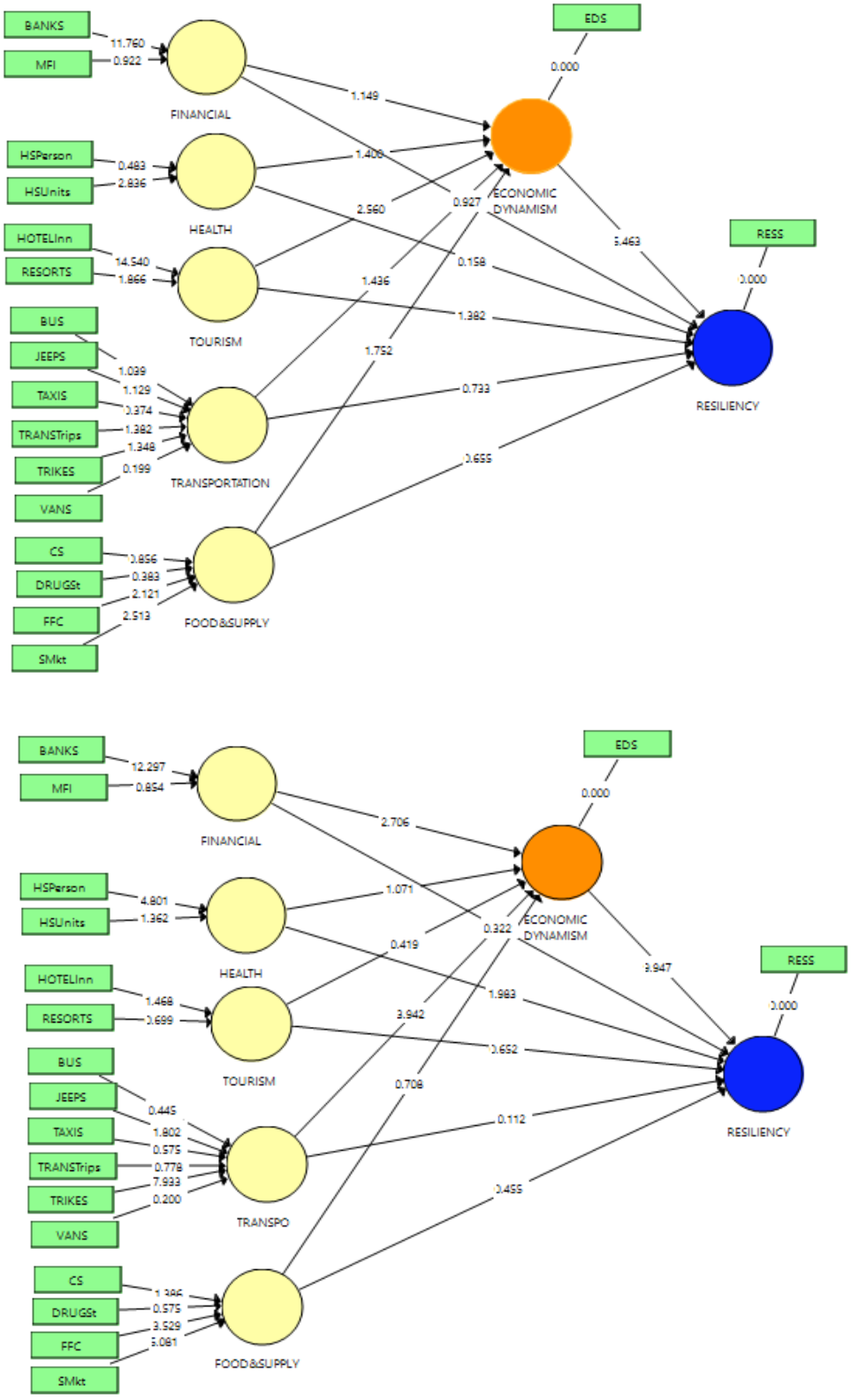

Figure 1. SEM results for the determinants of resiliency with economic dynamism as a mediating variable (top: cities) (bottom: municipalities).

and midwives), and institutions (public and private hospitals, clinics, and centers). The tourism sector included hotels, inns, and resorts. The transportation sector is proxied by the number of jeeps, taxis, buses, vans, tricycles, and the frequency of trips. The observed variables for the food and supply sector included the number of convenience stores, drug stores, fast food chains, and supermarkets.

IV. Analytical Results and Discussion

In this section, the results are presented and discussed. The descriptive statistics are presented first before the main objectives of this study are discussed.

A. Characteristics of the Local Government Units in the Philippines

Table 2 shows the classification of the local government units covered in this study, and the type of unit, whether municipality or city.

Table 2. Classification and type of local government units.

CLASS	LGU Type	Freq.	Percent	Cum.
First	Municipality	318	20.98	20.98
Second	Municipality	170	11.21	32.19
Third	Municipality	248	16.36	48.55
Fourth	Municipality	362	23.88	72.43
Fifth	Municipality	255	16.82	89.25
Sixth	Municipality	19	1.25	90.5
Component	City	106	6.99	97.49
Highly Urbanized	City	33	2.18	99.67
Independent Component City	City	5	0.33	100
Total		**1,516**	**100**	

It can be seen from the table that the class that contains that highest number of LGUs is the fourth class, 362. The first-class municipalities follow with 318 LGUs. As published in the CMCI website, the fourth class's municipalities have an average annual income of P25 million but not less than P35 million. The first-class municipalities are those that have an average annual income of P55 million or more during the previous four calendar years.

The class that has the lowest number of LGUs is the independent components cities, which has only 5 LGUs under it. The second class with the lowest number of LGUs is the sixth class, which has less than P15 million average annual income. The highly urbanized cities in the country consist of only 33 LGUs. They are those cities 200,000 minimum inhabitants and with the latest annual income of at least P50,000,000.

Table 3 shows the descriptive statistics for the variables investigated. The presentation is done by LGU type (cities and municipalities). The banks (commercial, thrift and savings, and rural) and microfinance institutions (MFIs) represent the financial sector. As can be seen in the table, the average number of banks in every city is 91.85 or 92, and 33.83 or 34 microfinance institutions. However, for the first to sixth class municipalities, the average number of banks is 6.44 or 6, and 3.18 or 3 MFIs. It is evident that even though there are only 144 LGUs under the City classification, they have a higher number of institutions in the financial sector.

This holds true even for the other sectors. The information in Table 3 shows us the big disparity between the cities and municipalities in the country when it comes to the number of units under the financial, health services, tourism, transportation, and food and supply sectors. It can also be seen that the cities are more dynamic and resilient compared to the municipalities.

Table 3. Descriptive statistics for the variables under cities and municipalities.

Variables	Cities				Municipalities			
	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
FINANCIAL								
BANKS	91.85	141.99	0	950	6.44	8.32	0	86
MICROFINANCE	33.83	56.34	0	571.13	3.18	5.70	0	137.25
HEALTH SERVICES								
HS PERSONNEL	1,093.03	2,098.07	0	19,107	46.23	77.61	0	1,226
HS UNITS	115.39	137.37	0	1,047	13.33	29.36	0	832
TOURISM								
HOTELS AND INNS	9.72	17.03	0	116.75	1.05	4.45	0	109.90
RESORTS	2.46	3.15	0	17.5	1.34	6.71	0	230.63
TRANSPORTATION								
BUS	428.07	1,409.93	0	12,821	47.79	397.69	0	14,061
VANS	311.01	605.15	0	4,042	31.81	151.18	0	3,326
JEEPS	1,723.69	3,610.73	0	23,747	82.56	372.45	0	8,105
TRICYCLES	4,069.01	4m725.12	0	34,021	439.74	861.37	0	10,095
TAXIS	462.17	1,872.17	0	17,677	5.53	86.10	0	2,920
TRIPS FREQUENCY	9,156.31	27,390.76	0	193,032	888.03	19,133.95	0	704,865
FOOD AND SUPPLY								
FAST FOOD CHAIN	33.52	77.37	0	725.63	1.45	6.89	0	154.37
CONVENIENCE STORES	37.07	167.55	0	1,909.75	6.23	145.73	0	5,388.25
SUPERMARKETS	6.33	9.20	0	77.87	.42	1.15	0	24.38
DRUG STORES	34.93	44.60	0	304.63	3.52	15.59	0	475.5
ECONOMIC DYNAMISM SCORES	5.49	2.21	2.26	13.34	4.19	1.11	.9	9.60
RESILIENCY SCORES	16.52	2.16	0	20.46	15.18	3.11	0	19.75
	N = 144				*N = 1,372*			

In addition to Table 3, graphs for the economic dynamism and resiliency scores of the LGUS are also presented in Figure 2 and Figure 3. The mean of the economic dynamism and resiliency scores of the LGUs are graphed per class.

Figure 2 shows the difference in economic dynamism scores among the cities (component, highly urbanized, and independent components) and municipalities (first to sixth class).

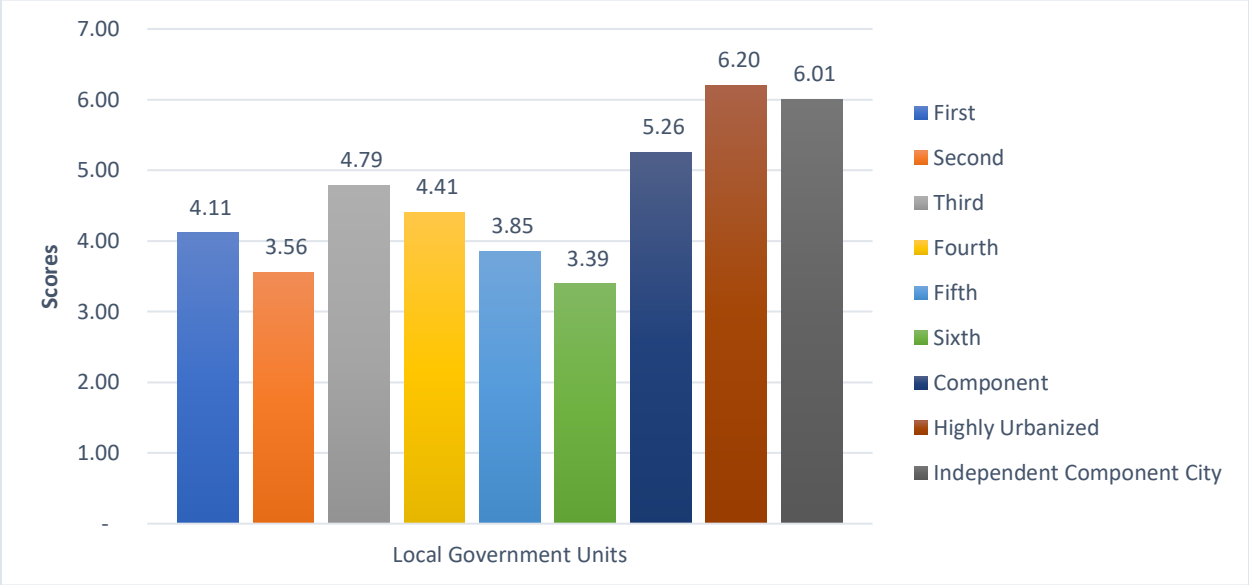

Figure 2. Economic dynamism scores (mean) of the local government units in the Philippines.

The three highest means are registered under the highly urbanized (6.20), independent component city (6.01), and components cities (5.26), with the highly urbanized cities having the most dynamic economy. The activities in the cities are proven to create better stability and improvement, and higher employment rate, as compared to the municipalities. The majority of the highly urbanized cities are in Metro Manila. As such, this result supports Aguinaldo (2019) claims that Metro Manila is one of the main reasons for the country's more dynamic economy.

On one side, it is interesting to know that the LGUs under the third-class municipalities have a more dynamic economy as compared to the LGUs under the first and second classes, and the fourth-class municipalities followed such. There's a significant difference between the third-class and first-class municipalities (higher) when it comes to annual income. However, the third-class LGUs were found to have the most dynamic economy among the municipalities. We can also see from the graph that the second-class municipalities have the second lowest economic dynamism scores, just a little bit higher than the score of the LGUs under the sixth class. It could be understood why the sixth-class municipalities have the lowest economic dynamism scores. However, the case could be different when it comes to the second-class municipalities because they earn a high annual income.

The mean of the resiliency scores of the LGUs is also plotted in the graph, as shown in Figure 3. It is obvious that the cities – independent components (17.04), highly urbanized (16.5), and components cities (16.50), are documented to have the highest resiliency scores, with the independent component cities being the most resilient LGU. Among the LGUs, the independent component cities have the most capacity to facilitate businesses, create jobs, raise productivity, and increase citizens' incomes over time despite economic shocks and stresses.

Among the municipalities, those belonging to the first class are noted to be the most resilient, with a 16.08 score. It is also to be noted that the ranking of the scores comes in classification, the first-class being the most resilient, followed by the second class, and so on, and the sixth class is the least resilient. It is interesting that when it comes to economic dynamism, the first-class municipalities are not the most dynamic; however, they are the most resilient.

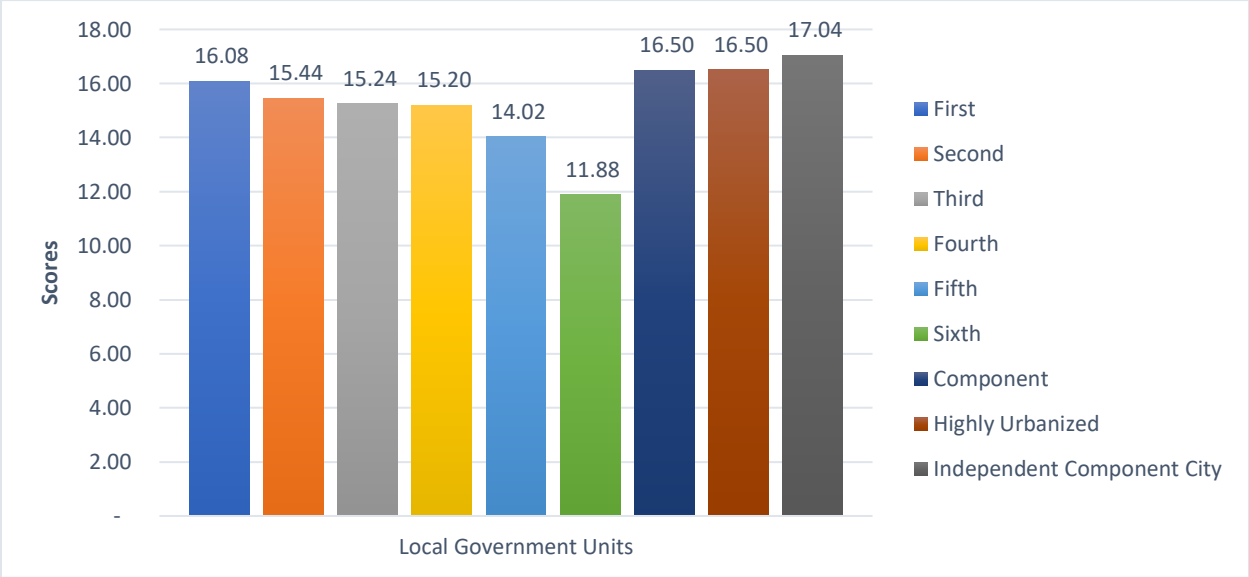

Figure 3. Resiliency scores (mean) of the local government units in the Philippines.

Both economic dynamism and resiliency graphs show us the disparity between the LGUs under the city and municipality types. The LGUs under the city classification have unique characteristics for the economy compared with those under the municipality classification. Such is evident in the figures and graphs shown in this section. The cities have a more dynamic economy, especially the highly urbanized ones. They are also the most resilient, especially the independent component cities.

B. Determinants of Resiliency with Economic Dynamism as a Moderating Variable

This study examined the determinants of resiliency with economic dynamism as a mediating variable. This study has developed two structural equation models (SEM) and examined separately those LGUs belonging to city and municipality classification. Table 4 shows the entire SEM results ran using the data of the cities and municipalities in the Philippines. The direct and indirect paths are combined in the table.

a. The Sectors and their Economic Dynamism

As part of the investigation, the determinants of economic dynamism were also studied, and this is part of the 12 path coefficients shown in Figure 1. Accordingly, the path between the sectors and economic dynamism was explored – (1) financial to economic dynamism, (2) health services to economic dynamism, (3) tourism to economic dynamism, (4) transportation to economic dynamism, and (4) food and supply to economic dynamism. These are the direct paths examined in this study.

As shown in Table 4, the only significant determinant of the cities' economic dynamism is the tourism sector, with a positive coefficient of 0.327 and p-value of 0.011, and significant at 5% alpha level. All the other sectors – financial, health, tourism, and food and supply, are not significant predictors of the cities' dynamic economy.

Table 4. Structural equation modeling results for the determinants of resiliency with economic dynamism as a mediating variable.

Models	Cities					Municipalities				
	Coef	Confidence Intervals 2.50%	Confidence Intervals 97.50%	T Stat	P Values	Coef	Confidence Intervals 2.50%	Confidence Intervals 97.50%	T Stat	P Values
Direct Relationships										
ED -> RES	0.392	0.253	0.536	5.463	0.000***	0.264	0.203	0.306	9.947	0.000***
FINANCIAL -> ED	-0.292	-0.822	0.194	1.149	0.251	0.143	0.040	0.241	2.706	0.007***
FINANCIAL -> RES	0.233	-0.419	0.626	0.927	0.354	0.019	-0.105	0.116	0.322	0.748
HEALTH -> ED	0.240	-0.141	0.523	1.400	0.162	0.043	-0.045	0.108	1.071	0.285
HEALTH -> RES	-0.027	-0.309	0.339	0.158	0.875	0.088	0.016	0.187	1.983	0.048**
TOURISM -> ED	0.327	-0.002	0.482	2.560	0.011**	0.015	-0.055	0.094	0.419	0.675
TOURISM -> RES	-0.246	-0.586	0.066	1.382	0.168	0.013	-0.029	0.056	0.652	0.515
TRANSPO -> ED	0.195	0.014	0.538	1.436	0.152	0.186	0.121	0.299	3.942	0.000***
TRANSPO -> RES	0.084	-0.129	0.335	0.733	0.464	-0.005	-0.083	0.094	0.112	0.911
FOOD&SUPPLY -> ED	0.305	-0.002	0.664	1.752	0.080*	0.030	-0.036	0.127	0.74	0.459
FOOD&SUPPLY -> RES	-0.114	-0.398	0.272	0.655	0.513	0.016	-0.039	0.101	0.48	0.634
Mediating Relationships										
FINANCIAL -> ED -> RES	-0.114	-0.343	0.080	1.081	0.280	0.038	0.011	0.063	2.785	0.006***
HEALTH -> ED -> RES	0.094	-0.052	0.223	1.324	0.186	0.011	-0.013	0.029	1.080	0.281
TOURISM -> ED -> RES	0.128	-0.001	0.225	2.179	0.030**	0.004	-0.015	0.023	0.430	0.667
TRANSPO -> ED -> RES	0.076	0.005	0.222	1.362	0.174	0.049	0.028	0.081	3.618	0.000***
FOOD&SUPPLY -> ED -> RES	0.119	-0.001	0.297	1.540	0.124	0.008	-0.009	0.033	0.712	0.477
	N = 144					*N = 1,372*				

****significant at 1% alpha level; ** significant at 5% alpha level; * significant at 10% alpha level;*

For the municipalities, the significant determinants of economic dynamism are the financial and transportation sectors, with coefficients of 0.143 and 0.186, respectively, and significant at 1% alpha level. Based on the results, we can see that the cities and municipalities have different significant economic dynamism determinants.

The tourism activities that extend income to the hotels, inns, and resorts could be very significant in the activities of the LGUs under the city classification. It can be recalled that the city class is composed of component, independent component and highly urbanized cities. There are quite a number of hotels, inns, and resorts in those cities, and it can be inferred that such plays a significant role, which this study provides strong evidence, in creating a more dynamic economy. The results are consistent with the studies conducted by Chou (2013) and Maden et al. (2019). This could be attributed to the increased activities when there are local and international tourists visiting the cities. When there are tourists, the other economic sectors are also extended some profitable activities. Such becomes part of the added activities of the cities that may contribute more to their economic dynamism.

In another perspective, the predictors of a dynamic economy are different when it comes to the LGUs under the first to sixth-class municipalities. This study documents that the financial and transportation sectors are positive predictors of a dynamic economy of the municipalities in the Philippines. The higher the number of banks and microfinance institutions, the more dynamic a municipality's economy will be. It could be because the institutions under the financial sectors, particularly the banks and MFIs, help the business establishments to raise funds for their profitable ventures. As there are more businesses and startups, there will be more income and higher employment rates. Such is consistent with Herring and Santomero (2013) notion about efficient financial systems that trigger economic dynamism by enhancing the people's consumption and helping businesses and the government raise more funds. This result also supports the arguments about banks' significant role (Anh, 2020) and MFIs (Murad & Idewele, 2017; Oyinpreye, 2016; Puatwoe & Piabuo, 2017) in economic growth. When it comes to the impact of the transportation sector on economic dynamism, the movement and activities added by the people's travel activities could have contributed significantly to creating a dynamic economy.

b. Determinants of Resiliency

Table 4 also shows the direct paths between the sectors and resiliency. This is also part of the analysis of the entire relationships among the variables – sectors, economic dynamism, and resiliency. These paths can also be seen in Figure 1 – (1) financial to resiliency, (2) health services to resiliency, (3) tourism to resiliency, (4) transportation to resiliency, and (4) food and supply to resiliency. It is interesting to note that only the health services group has a direct influence on the resiliency of the municipalities among the sectors. This implies that the higher the health services personnel and institutions, the higher the municipality's resiliency will be. It is also to be noted that none of the sectors directly impact the cities' resiliency.

This study also provides very strong evidence that economic dynamism is a determinant of resiliency, with a positive coefficient of 0.392 (for cities) and 0.264 (for municipalities), and a p-value of 0.0000 (both cities and municipalities) that is significant at 1% alpha level. Such a result supports Fratesi and Rodriguez-Pose (2016) arguments that when a unit has a dynamic and robust economy before an economic shock hits, it has the more capacity to cope up and recover from the stress. The more dynamic the economy of the LGUs, the more resilient they will be. This is because there are more businesses in a more dynamic economy, more activities, more income, and a higher employment rate. Companies are profitable, and people have jobs, and these help the LGU counter the effects of any economic shocks and stresses because their economic foundation is strong.

When it comes to the mediation effect of economic dynamism in the influence of the financial, health, tourism, transportation, and food and supply sectors on resiliency, not all

the indirect paths are noted to be significant. The mediation role of economic dynamism has been proven in the association between the cities' tourism sector and resiliency. Notice that if the cities' model contains only the tourism and resiliency variables, the tourism sector has no significant effect on resiliency. However, when economic dynamism has been introduced in the model, the path between tourism and resiliency becomes significant. Such is evidenced by the coefficient of 0.128 and p-value of 0.030, which is significant at 5% alpha level. Recall also that the cities' tourism sector is a significant determinant of economic dynamism, and economic dynamism has a positive influence on resiliency. The influence of the tourism sector passed through economic dynamism, which ultimately strengthened the cities' resiliency. This implies that the more hotels, inns, and resorts, the more dynamic an economy will be, and the more resilient it will become.

In addition, Table 4 also shows the SEM results for the municipalities, mediation effect of economic dynamism is proven in the association between two indirect paths – (1) financial and resiliency, and (2) transportation and resiliency. Recall also that the direct path between the financial sector and resiliency, and between transportation and resiliency, are positive but not significant in the first model. However, when economic dynamism was included as a mediator, such positive association becomes significant, evidenced by the coefficient of 0.038 and p-value of 0.006 (financial to resiliency), and coefficient 0.049 and p-value of 0.000 (transportation to resiliency), which are both significant at 1% alpha level. Remember also that both the financial and transportation sectors are positive determinants of economic dynamism, and economic dynamism is a significant determinant of resiliency. The positive effects of the financial and transportation sectors passed through economic dynamism and ultimately reflected in the enhanced resiliency of the LGUs under the municipality classification. More banks and microfinance institutions can help more businesses, which can generate more income and employ more people. More financial institutions can help create a more dynamic economy, which could strengthen resiliency. More travel activities can also help other sectors, increase the income and other profitable activities of the municipalities. There is no direct connection between the financial sector and resiliency, and transportation sector and resiliency; only associations that are mediated by economic dynamism.

V. Conclusion, Recommendations, Policy Implications

This section presents the conclusion and discusses the recommendations and policy implications based on this study's findings.

A. Conclusion

This study examined the mediation effect of economic dynamism in the link between some of the sectors greatly affected by the COVID-19 pandemic and their LGUs' (city and municipality) resiliency. Sectors such as financial, health services, tourism, transportation, and food and supply were included in this study as the independent variables, which are measured through the eight-year average of the units (persons, institutions, and frequency), 2011-2018. The 2019 economic dynamism scores of the cities and municipalities, as reflected in the CMCI database, were used as the mediating variable. The 2019 resiliency scores of the LGUs served as the dependent variable. The analysis was done by separating the LGUs from the city (component, independent component, and highly urbanized) and municipality classes (first to sixth class). This study covered all the 1,516 LGUs – 144 cities and 1,372 municipalities. Descriptive statistics were used to describe the features of the population. This

study's primary statistical tool is the Structural Equation Modeling (SEM) using the SmartPLS software to analyze the 11 direct paths and one indirect path among the variables under study.

This study documented that the LGUs with the highest economic dynamism and resiliency scores belong to the city type. Highly urbanized cities have the highest economic dynamism scores, while the independent component cities are the most resilient. Among the LGUs under the first to sixth-class municipalities, the third-class has the most dynamic economy, while the first-class municipalities are the most resilient. The LGUs under the sixth-class municipalities have the least dynamic economy and lowest resiliency.

This study also found evidence that the tourism sector is a positive and significant determinant of the economic dynamism of the LGUs under the city classification, and the financial and transportation sectors are the positive determinants of the dynamic economy of the LGUs under the municipality classification. The health services sector has also been documented to directly and positively affect the municipalities' resiliency. As the tourism sector progresses, the economy of the component, independent component and highly urbanized cities becomes more dynamic. In addition, with more banks and microfinance institutions, and more travel activities, there will also be a more dynamic economy in the Philippine municipalities. This study also found very strong evidence that economic dynamism positively influences resiliency, and such influence is positive. A more dynamic economy has high number of established businesses and startups, which contributes to the creation of jobs and earning more income. A more dynamic economy will also lead to improved resiliency, which is the capacity of the locality to recover from economic shocks.

In addition, this study found evidence that the influence of the tourism sector on the cities' resiliency is not direct. Such is mediated by economic dynamism. The tourism sector help in creating a more dynamic economy for the cities in the Philippines, and such a dynamic economy is one of the foundations of resiliency. Lastly, the municipalities' financial and transportation sectors also have no direct influence on resiliency. The path is also mediated by economic dynamism. More financial institutions and more transportation activities will lead to a more dynamic economy, which can be the foundation of better resiliency.

B. Recommendation

Based on this study's results, it is recommended to the LGUs under the city classification to prioritize the tourism sector in their economic recovery programs and initiatives. More assistance may be given to the hotels, inns, and resorts that were affected by this pandemic. The government may also launch programs that would further strengthen tourism promotion in the country after this pandemic.

For the LGUs of the first to sixth class municipalities in the country, it is recommended to prioritize the economic rehabilitation's financial and transportation sectors, as this would accelerate the re-establishment of the dynamic economy and improve the locality's economic resiliency. More financial and program assistance may be extended to banks and microfinance institutions after this pandemic is over. Further, more assistance can be given to the drivers and operators of jeepneys, vans, taxis, buses, and tricycles in the first to sixth-class municipalities. The assistance can be financial or in the form of sustainable programs or projects that could alleviate the economic stress in the transportation sector.

C. Policy Implications

Part of this study's findings are the significant determinants of economic dynamism and resiliency, including the tourism sector (for cities) and the financial and transportation sectors (for municipalities). The national government may formulate strategies and policies on strengthening the promotion of tourism in the entire country. With the new normal, it seems that the environment was able and continue to break from the people's harmful activities and business establishments. After this pandemic, the tourism sector must be strengthened to generate more income, provide more employment, and open profitable opportunities to the country's other economic sectors. The hotels, tourist inns, and resorts are just some of what composes the tourism sector. In this time of crisis, there has been a significant decline in their activities. They need more interventions from the government. The Department of Tourism may consider realigning its plans and programs for the tourism sector after this pandemic.

Another implication of the findings related to the economic dynamism ang resiliency of the municipalities in the country is that the LGUs may consider putting more focus and priority to the financial and transportation sectors. In the financial sector, especially banks and MFIs, the national government has issued an advisory for the moratorium or suspension of loan payments for two months. This is understandable because many people are affected by this pandemic. However, the government must also look at the perspective of the institutions under the financial sector. The loan and interest payments are the lifeblood of the institutions. As such, the national government may also consider extending financial or other forms of assistance to the sector to ensure that majority of them can still sustain their operations even after this crisis. Further, the municipalities may also prioritize the transportation sector in their rehabilitation programs and initiatives. The transportation sector extends services across all other sectors, and in this time of pandemic, it is one of the most affected sectors. The operators and drivers of buses, taxis, jeepneys, vans, and tricycles are suffering from the now very limited movements, activities, and travel frequencies of the people. The sectors may also be given program and project assistance to ensure that the operators will continue to be in business even after this crisis. The government may also grant tax reduction schemes for these sectors.

Lastly, the government may establish programs and policies to keep our health workers in the country as their sector is the only direct determinant of resiliency among the sectors covered. Aside from the fact that the health services personnel and units are at the frontline in the fight against the COVID-19, they also compose the sector that strengthen the municipalities' resiliency. The government may consider increasing their compensation and other benefits to encourage them to stay in and work for the country.

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