Examining the Conceptualization and Correlates of Competitiveness of Cities and Municipalities in the Philippines

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Abstract

In examining the conceptualization and correlates of competitiveness of cities and municipalities in the Philippines, this study established that competitiveness is multidimensional, and its factor structure differs by the type of LGU. Furthermore, the study found that IRA dependency has a negative effect on "Economic Dynamism" and the combined "Government Efficiency and Infrastructure" on LGUs of all income classes, but the effect among 5th/6th class LGUs is most pronounced. In addition, "IRA dependency" has a negative effect on the "Resiliency" of the 5th/6th class LGUs' but not on their richer counterparts. Household poverty, on the other hand, is generally negatively associated with competitiveness, although the magnitude of this relationship varied by LGU types. Through structural equation modeling, confirmatory factor analysis determined which of the several hypothetical factor structure models provided the best-fitting conceptualization of competitiveness. The final model was subjected to multiple group analysis to test its invariance across income groups. Finally, "IRA dependency" and "Household poverty" were integrated into the final model to examine their association with competitiveness. In improving competitiveness, the study recommends policymakers and local government executives target their policies, efforts, and resources on particular indicators based on the type of LGU, even as some indicators need to be addressed, established, or enhanced across LGU types.

Keywords: correlates of competitiveness, structural equation modeling, group invariance, IRA dependency and competitiveness, household poverty and competitiveness

I. Introduction

A. Background of the Study

Competitiveness is an important concept that governments can use as a strategy for economic development (Berger, 2008), as a basis for improving public service (Mendoza, 2020), or as an approach for improving welfare (Wang, et al., 2004).

The Philippines, through the Philippine National Competitiveness Council (NCC), has been producing competitiveness reports since 2012 through the Cities and Municipalities Competitiveness Index (CMCI). Executive Order 571 (S. 2006) established the precursor of the NCC in October 2006, which created the "Public-Private Sector Task Force on Philippine Competitiveness" and attached it to the Office of the President. EO 571 (S. 2006) put a structure and set in motion the “collective desire of the government and the business sector to improve international competitiveness to strengthen our industry, agriculture and service sectors, create jobs, and increase incomes…." On June 3, 2011, Executive Order 44 (S. 2011) amended Executive Order 571 (S. 2006), renaming the "Public-Private Sector Task Force on Philippine Competitiveness" into the "National Competitiveness Council." NCC was attached to DTI and reported to the Cabinet's Economic Development Cluster.

The Philippine NCC developed and uses a competitiveness index as a metric for gauging cities’ and municipalities’ productivity based on the simple average of scores on four pillars: Economic Dynamism, Government Efficiency, Infrastructure, and Resiliency, with each pillar having ten indicators each. But the assumption that these pillars and their respective indicators are equally contributing to the concepts in question could be investigated.

B. Statement of Research Problem and Objectives

The main objective of this study was to examine the conceptualization and correlates of competitiveness of cities and municipalities in the Philippines.

Specifically, the study aimed to a) determine the factor structure of competitiveness as a latent construct; b) demonstrate whether this factor structure holds regardless of the income classification of LGU (HUC/CC, 1st/2nd class, 3rd/4th class, and 5th/6th class); and c) analyze the association between competitiveness and selected exogenous city/municipality-level variables. To address the above aims, the study sought to answer the following research questions: (a) Does competitiveness have sufficient unidimensionality as a latent construct? b) Is there evidence that the factor structure of competitiveness differs by the type of LGU, and c) Are household poverty and Internal Revenue Allotment (IRA) dependency significantly associated with competitiveness?

This study used the 2020 data from the Department of Trade and Industry (MGAR Aquino, email, February 19, 2021).

C. Significance of the Study

This study served as an opportunity to review the CMCI framework and its components. Out of that review, the study would suggest possible ways for improvement—on the factors, their structures, and possibly even inquire how the data are gathered and processed. Different organizations that publish competitiveness reports follow their own approaches. We can gain insights from other studies on competitiveness and learn what CMCI could adopt through this study. In addition, the results of this study could inform policymakers and local government executives on the attributes of local competitiveness and the external factors driving it, and thus help them focus their policies, efforts, and resources on what matters most in improving a government unit's competitiveness.

D. Scope and Limitations

1. Scope

The study covered 1,517 cities and municipalities in the Philippines, spanning all regions in the country except the Autonomous Region of Muslim Mindanao. Of this, 1,373 or 90.5 percent were municipalities, while 144 or 9.5 percent were cities. Table 1 shows the distribution of local government units (LGUs) by their income classification:

Table 1
Distribution of LGUs by Income Classification

Income Class	N	Percent
Cities (highly urbanized, component cities, independent component cities)	144	9.5
1st Class / 2nd Class	489	32.2
3rd Class / 4th Class	611	40.3
5th Class / 6th Class	273	18.0

2. Limitations

In analyzing the association between competitiveness and selected exogenous city/municipality-level variables, we used Internal Revenue Allotment (IRA) and poverty estimates.

Internal Revenue Allotment. The IRA data used was 2018, which as of this writing was the latest publicly available data by type of LGU. Therefore, this IRA data did not match the timeframe of the 2020 DTI data on the indicators for the different pillars.

IRA refers to an LGU's share of revenues from the national government, and it makes up the greatest source of funding for many LGUs. As a measure of how LGUs heavily depend on IRA for a given year, the Department of Finance computes **IRA dependency** as the ratio of IRA to annual regular income (ARI), which is the sum of locally-sourced revenue, the IRA, and other shares from national tax collection for a given year. Its value ranges from 0 to 1, with higher values corresponding to greater IRA dependency. Table 2 presents the mean IRA dependency in 2018.

Table 2
Average IRA Dependency by LGU Type

LGU Type	Mean IRA Dependency	Std. Err.
HUCs/CCs	0.66	0.66
1st / 2nd Class	0.80	0.80
3rd / 4th Class	0.87	0.87
5th / 6th Class	0.90	0.90

Poverty Estimates. Official poverty estimates are only available at the provincial level, while small-area estimation of poverty was last done in 2012. As an alternative, we computed for household poverty rate or the proportion of poor households by utilizing 2015 census data and the municipal- and city-level data of households assessed as "poor" by the 2015 National Household Targeting System (NHTS) (Philippine Statistics Authority, 2016; National Anti-Poverty Commission, n.d.). The former was conducted by the Department of Social Welfare and Development to determine the beneficiaries of the Conditional Cash Transfer Program. This paper determined the household poverty rate by dividing the number of NHTS-assessed poor households by the total number of households in 2015 according to the census. Table 3 presents the household poverty rate by LGU Type.

Table 3
Household Poverty Rate by LGU Type

LGU Type	HH Poverty (%)	Std. Error
HUCs/CCs	11.8	1.05
1st / 2nd Class	24.7	0.83
3rd / 4th Class	31.5	0.72
5th / 6th Class	35.6	1.21

Note: weighted by the total number of households

This paper assumed that the values of these exogenous variables did not substantially change in the last few years.

Despite the above limitations, this study could gain valuable insights in examining the possible relationship of these exogenous variables to the factors that remained in the best-fitting model.

II. Review of Related Literature

A. Competitiveness and Competitiveness Reports

"Competitiveness" is defined in many ways, such as being "the set of institutions, policies, and factors that determine the level of productivity of a country" (WEF, 2016), or as how countries "manage their competencies to achieve long-term value creation" (IMD, 2021), or as "sustainable productivity and prosperity across cities and municipalities…to improve their standards of living…." (DTI, p. 8., 2019). WEF (2016) adds how a country promotes well-being is a way to think about what makes it competitive. The recurring themes among these definitions are productivity and value creation, with an end-view of improving living standards and achieving sustainable prosperity and well-being.

Several international organizations have embarked on collecting data on competitiveness factors from several countries and computing and monitoring the movement of indices to track how the countries progress. Among the major such organizations include (a) the International Institute of Management Development (IMD), which has produced the World Competitiveness Yearbook (WCY) starting in 1989; in 2021 the report covered 64 countries, which included 330 criteria (IMD,2021); (b) the World Economic Forum (WEF), which has produced the Global Competitiveness Report (GCR) starting in 1979; it covers 141 countries, which listed 103 indicators grouped into 12 themes (WEF, 2019), and (c) the IPS (Institute for Industrial Policy Studies (IPS), which has produced the National Competitiveness Research Report (NCRR) starting in 2001 (IPS, n.d.).

In addition to these organizations, some countries also conduct competitiveness studies to track their progress. Among these countries are: (a) Turkey, which monitors the competitiveness of its cities, noting that: "Today, cities are competing for attracting people who have skill and investment capability as well as other resources" (Bulu, 2011); (b) New Zealand, which tracks sector outputs and the productivity trends of its industries (New Zealand Productivity Commissions, 2021); and (c) Ireland, which compares its competitiveness performance with other countries that it competes with for trade and investment (National Competitiveness Council, Ireland, 2017).

B. Criticisms on Competitiveness Rankings

Competitiveness rankings have been criticized for their methods, concepts, logic, and even ideology. For example, Bergsteiner and Avery (2018) point to the rankings' ideological bias for adopting a neo-liberal view. Bandura (2005) adds to the criticism on composite indices as they apply methodology across countries, ignoring their development or industrialization status. Moreover, competitiveness rankings also weakly represent and poorly predict the countries' progress and, thus, they could misguide policymakers (Berger, 2009). Also, the methodology used for computing composite indices to measure country performance tends to oversimplify the intricacies, where the indicators used are correlated, and the data used are of poor quality (Bandura, 2005).

C. Usefulness of Competitiveness Rankings

Despite the criticisms, country rankings offer some advantages, including their usefulness as a communication tool. They can make an otherwise multifaceted subject easier to understand and simplify the tracking and monitoring of changes or trends and thus guide researchers and policymakers. (Bandura, 2005). These rankings, Ernst (2002) adds, can be helpful in placing the position of a country relative to others, deciding on priorities, helping evaluate the effect of policies, and grasping the situation or condition of a country based on a third-party viewpoint.

D. Studies on LGU Competitiveness

Brovetto and Saliterer (2007) studied how regions, cities, and communities used the benchmarking approach to improve competitiveness and performance. They concluded that because benchmarking focuses only on operational and organizational aspects rather than at the strategy and policy level, they are unlikely to positively affect the regions', cities', and communities' service improvement or enhance or sustain their competitiveness performance.

In studying Chinese cities, Jiang and Shen (2010) extended the traditional view of competitiveness from mainly an economic perspective to include social and environmental aspects. They point out further that cities may be strong in different aspects. To sustain the competitiveness of the cities, they argued, they must perform well in all aspects.

Galic and Sehic (2013) researched the local government units of the Federation of Bosnia and Herzegovina to identify those that are most competitive for future investments based on unit labor cost.

Khusaini (2015) linked regional competitiveness with sustainable development, arguing that the more competitive a region is, the better the people's welfare. Citing the case of Banyuwangi district in East Java Indonesia, he points out that for competitiveness to enhance people's welfare, the concept of development must be pursued, and local communities must be empowered, considering local realities.

In the Philippines, an early study in 2001 by Largo et al. assessed the country's ten leading emerging urban centers and concluded that local leadership, focus on improving quality of life, and growth formations at the local or international levels could account for the high competitiveness rankings of General Santos City, Angeles City, and Baguio City. A more recent study by Galleta and Carpio (2019), using the Naive Bayes Algorithm, assessed the probability of competitiveness of the LGUs in Region 1 in the Philippines as a basis for recommending a development plan.

In terms of scope and methodology, the current study differs from the above-cited researches. This present study shares with these other studies the hope to better understand and make more sense of competitiveness rankings to inform policymakers and program implementers how to possibly improve the structure and framework used towards making the most and best use of these rankings.

III. Methodology

A. Variables and Measures/Concepts and Indicators

Table 4 below lists the four pillars and the ten indicators of each pillar, which comprise the CMCI framework.

Table 4
Pillars and Indicators

E= Economic Dynamism	G= Government Efficiency	I= Infrastructure	R= Resiliency
E1= Size of the local Economy	**G1**= Compliance to national directives	**I1**= Basic infrastructure: Existing road network	**R1**= Organization and coordination: Land use plan
E2= Growth of the local economy	**G2**= Presence of IPU	**I2**= Basic Infrastructure: Distance of City/Municipal Hall to major ports	**R2**= Organization and coordination: DRRMP
E3= Structure of the local economy	**G3**= Business registration efficiency	**I3**= Basic infrastructure: Availability of basic utilities	**R3**= Organization and coordination: Annual disaster drill
E4= Safety compliant business	**G4**= Capacity to generate local resources	**I4**= Number of public transportation vehicles	**R4**= Organization and coordination: Presence of an early warning system that integrates professional responders and grassroots organizations
E5= Increase in employment	**G5**= Capacity of health services	**I5**= Education infrastructure	**R5**= Resilience financing: ratio of budget for DRRMP to total LGU budget
E6= Cost of living	**G6**= Capacity of school services	**I6**= Health infrastructure	**R6**= Resilience reports: Local risk assessments
E7= Cost of doing business	**G7**= Recognition of performance	**I7**= LGU investment in infrastructure	**R7**= Resilience infrastructure: Emergency infrastructure
E8= Financial deepening	**G8**= Compliance to BPLS Standards	**I8**= Accommodation capacity	**R8**= Resilience infrastructure: Utilities
E9= Productivity	**G9**= Peace and order	**I9**= Information technology capacity	**R9**= Resilience of system: employed population (share of gross number of employees to total population of LGU)
E10= Presence of business and professional organizations	**G10**= Social protection	**I10**= Financial technology capacity: Number of Automated Teller Machines	**R10**= Resilience of system: sanitary system

ECONOMIC DYNAMISM is usually associated with activities that create stable expansion of business and industries and higher employment. **GOVERNMENT EFFICIENCY** refers to the quality and reliability of government services and government support for effective and sustainable productive expansion. **INFRASTRUCTURE** refers to the physical building blocks that connect, expand, and sustain a locality and its surroundings to enable the provision of goods and services. **RESILIENCY** is the capacity of a locality to facilitate businesses and industries to create jobs, raise productivity, and increase the incomes of citizens over time despite of the shocks and stresses it encounters. (https://cmci.dti.gov.ph/about-indicators.php)

Table 1 to Table 50, pages 11 to 44 of the DTI manual, present the measures and data required for each indicator (DTI, 2019).

B. Research Design and Methods

1. Research Design

To carry out the research objectives and answer the research questions, this study was designed to determine which of the several hypothetical factor structure models (i.e., unidimensional, four-factor, and higher-order factor models) provided the best-fitting conceptualization of competitiveness. The resulting best-fitting model was then subjected to multiple group analysis to test its invariance across income groups. Finally, the exogenous variables were integrated into the final model to examine their association with competitiveness.

2. Methods

Model Fit Comparison. To implement the above research design, this study used Structural Equation Modelling (SEM), where two procedures are simultaneously performed, namely, Confirmatory Factor Analysis (CFA) and linear regression. Through factor analysis, the study aimed to condense several indicators or "endogenous variables" into as few latent variables as possible. Its "confirmatory" aspect tested whether or not the predefined frameworks fit the data well to determine the best factor structure.

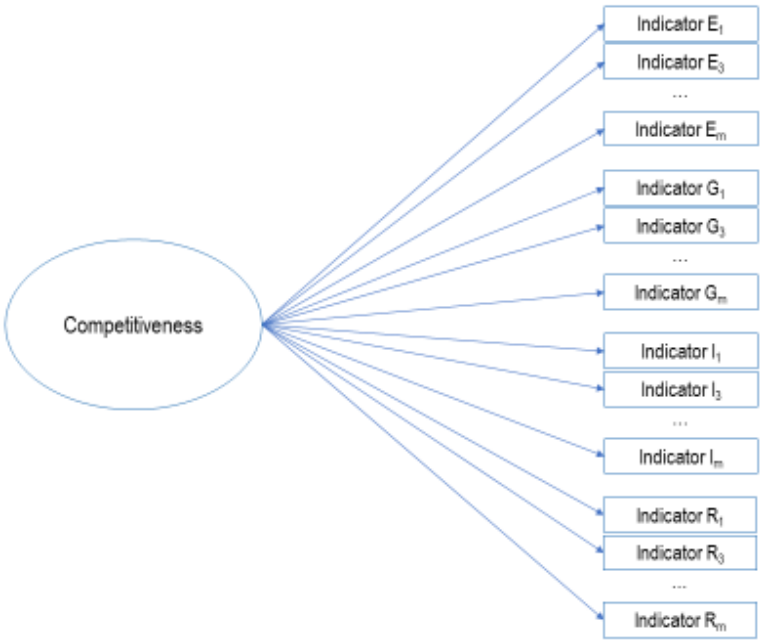
The three models tested are as follows:

a. Unidimensional or One-factor Model. In this model, all indicators are shown as a reflection of a single construct of competitiveness. See Figure 1.

Figure 1

Unidimensional/One-factor Model (Model 1)

All indicators are a reflection of a single construct of competitiveness.

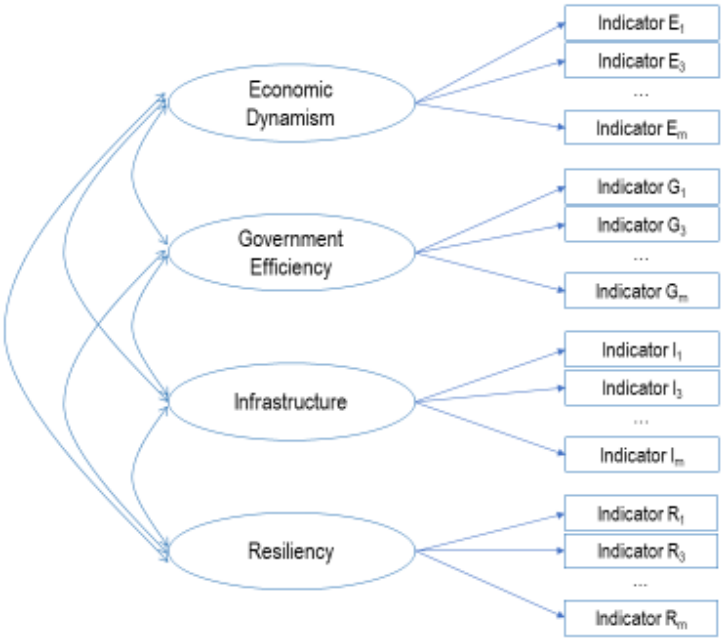


b. Four-factor Model. In this model, the four constructs or pillars of competitiveness are correlated. See Figure 2.

Figure 2

Correlated-four-factor Model (Model 2)

The four constructs of competitiveness are correlated with one another.

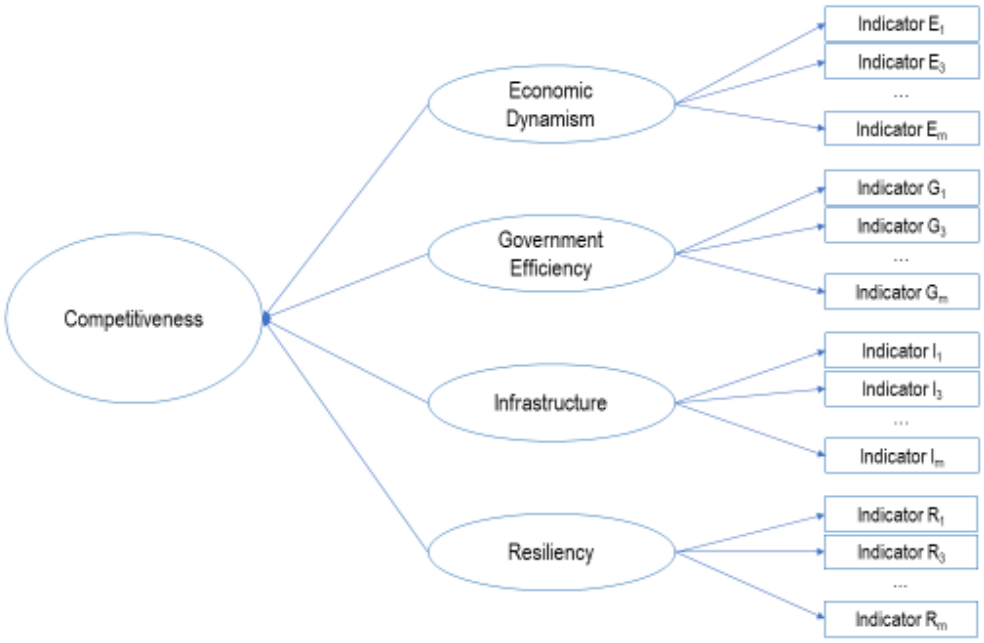


c. Higher-order-factor Model. In this model, the four constructs or pillars load on a single general construct of competitiveness. See Figure 3.

Figure 3

Higher-order-factor Model (Model 3)

The four constructs further load on a single general construct of competitiveness.



Testing Group Invariance. The resulting best-fitting model out of the three models tested was then further tested for three types of invariance across the income grouping of the LGUs (i.e., 1 – cities; 2 – first-class/second-class; 3 – third-class / fourth-class; 4 – fifth-class / sixth-class). The three types of invariance were as follows: configural invariance, wherein there is the same number of factors and pattern of loadings; weak/metric invariance, wherein the factor loadings are the same across groups; and strong/scalar invariance, wherein the factor loadings and intercepts are the same across groups.

The configural invariance model is nested within the weak invariance model, and the latter is nested within the strong invariance model. A likelihood ratio test (LRT) was utilized to compare these models. Two tests were produced: the first one compares the configural invariance model with the weak invariance model, while the second test compares the weak invariance model with the strong invariance model.

Relationship Between LGUs' Competitiveness, IRA Dependency, and Household Poverty. We next examined the association between LGU's competitiveness, IRA dependency, and household poverty. To analyze the exogenous variables' relationship with competitiveness, the configural model was modified to include three regression paths on the latent factors Economic Dynamism, Government Efficiency and Infrastructure, and Resiliency.

C. Statistical Test and Parameters

1. Evaluating SEM Performance

We evaluated the SEM performance in terms of the fit indices and their corresponding cutoffs, as suggested by Brown (2006), for a model to be considered well-fitting:

a. The model **chi-square** assessed overall model fit. If the p-value > 0.05, then we would say that the model fitted the data similar to the fully saturated model.

   However, as the chi-square is very sensitive to sample size, we also used other measures, such as those discussed below.

b. The **Tucker-Lewis Index (TLI)** indicated how the model improved the fit relative to the fully saturated ("perfectly" fitting) model. For example, if TLI is 0.713, then it would mean that the model improved the fit by only 71.3% relative to the fully saturated model. Brown (2006) recommends that TLI be greater than or equal to 0.90 to be deemed acceptable.

c. The **Comparative Fit Index (CFI)** is a version of the TLI that is less sensitive to sample size. The value of the CFI should also be equal to or greater than 0.90 for it to be deemed acceptable.

d. The **Root Mean Square Error of Approximation (RMSEA),** which is a parsimony-adjusted index. An RMSEA < 0.05 is recommended for it to be deemed acceptable.

e. The **Standardized Root Mean Square Residual (SRMR),** which is an absolute measure of fit derived from the difference between the observed correlation and the predicted correlation. Brown (2006) recommends that the SRMR be less than 0.08.

The estimator used was the default maximum likelihood (ML) estimator, which was shown to be the most efficient estimator for continuous data.

2. Testing Group Invariance

A Likelihood Ratio Test (LRT) was used to compare the models. Two tests were produced: the first one compares the configural invariance model with the weak invariance model, while the second test compares the weak invariance model with the strong invariance model.

3. Examining the Relationship Between LGUs' competitiveness, IRA Dependency, and Household Poverty

We examined the association between LGUs' competitiveness, IRA dependency, and household poverty, the latter two being the exogenous variables. To analyze the exogenous variables' relationship with competitiveness, the resulting model after testing for group invariance was modified to include three regression paths on the latent factors of the best-fitting model.

IV. Analytical Results and Discussions

A. Model Fit Comparison

Table 5 shows the fit indices of various models considered in this study.

Table 5.
Goodness-of-Fit Indices of Hypothetical Factor Models

Model	Description	χ^2	df	RMSEA	SRMR	CFI	TLI
Model 1	One-factor	14136.86	740	0.109	0.105	0.496	0.469
Model 2	Correlated four-factor[1]	10921.09	734	0.096	0.118	0.617	0.593
Model 2a	Reduced four-factor[1]	4194.29	246	0.103	0.096	0.788	0.763
Model 3	Higher-order- factor[2]						
Model 4	Reduced three-factor	4920.24	249	0.103	0.097	0.783	0.760

[1] Flagged for a nonpositive definite covariance matrix.
[2] No solution found, which indicates a problem with model identification or specification.

Note: robust fit indices: RMSEA – Root Mean Square Error of Approximation; CI – Confidence Interval; SRMR – Standardized Root Mean Square Residual; CFI – Comparative Fit Index; TLI – Tucker Lewis Index

1. Unidimensional or One-factor Model (Model 1)

Evidently, the one-factor model (Model 1) had the worst fit, as suggested by its very low CFI and TLI, indicating that competitiveness is not a unidimensional concept. At the very least, there is no evidence that the indicators load onto a single construct of competitiveness. Hence, we turn to multidimensional models.

2. Four-factor Model (Model 2) and Resulting Reduced-four-factor Model (Model 2a)

The correlated four-factor model (Model 2) also did not have a satisfactory fit, which could be explained by the several indicators with very low factor loadings. When all indicators with standardized factor loadings less than 0.10 were removed, we produced the reduced four-factor model (Model 2a), which resulted in a significantly improved model fit. Models 2 and 2a, however, were flagged for having a nonpositive definite (NPD) covariance matrix, indicative of high correlation or model misspecification. An obvious source of this issue is the high correlation between Government Efficiency and Infrastructure (correlation = 1.084, an invalid value). The issue of an NPD covariance matrix was no longer a problem when all indicators of Government Efficiency and Infrastructure had been combined, as in Model 4.

3. Higher-order-factor Model (Model 3)

The analysis yielded no solution, indicating model misspecification.

Even after increasing the number of iterations, the higher-order factor model failed to converge and reach a solution. This indicates that the model is non-identified or misspecified; that is, the number

of unknown parameters exceeds the number of pieces of information in the input variance-covariance matrix (Brown, 2006).

So, we proceed to Model 4.

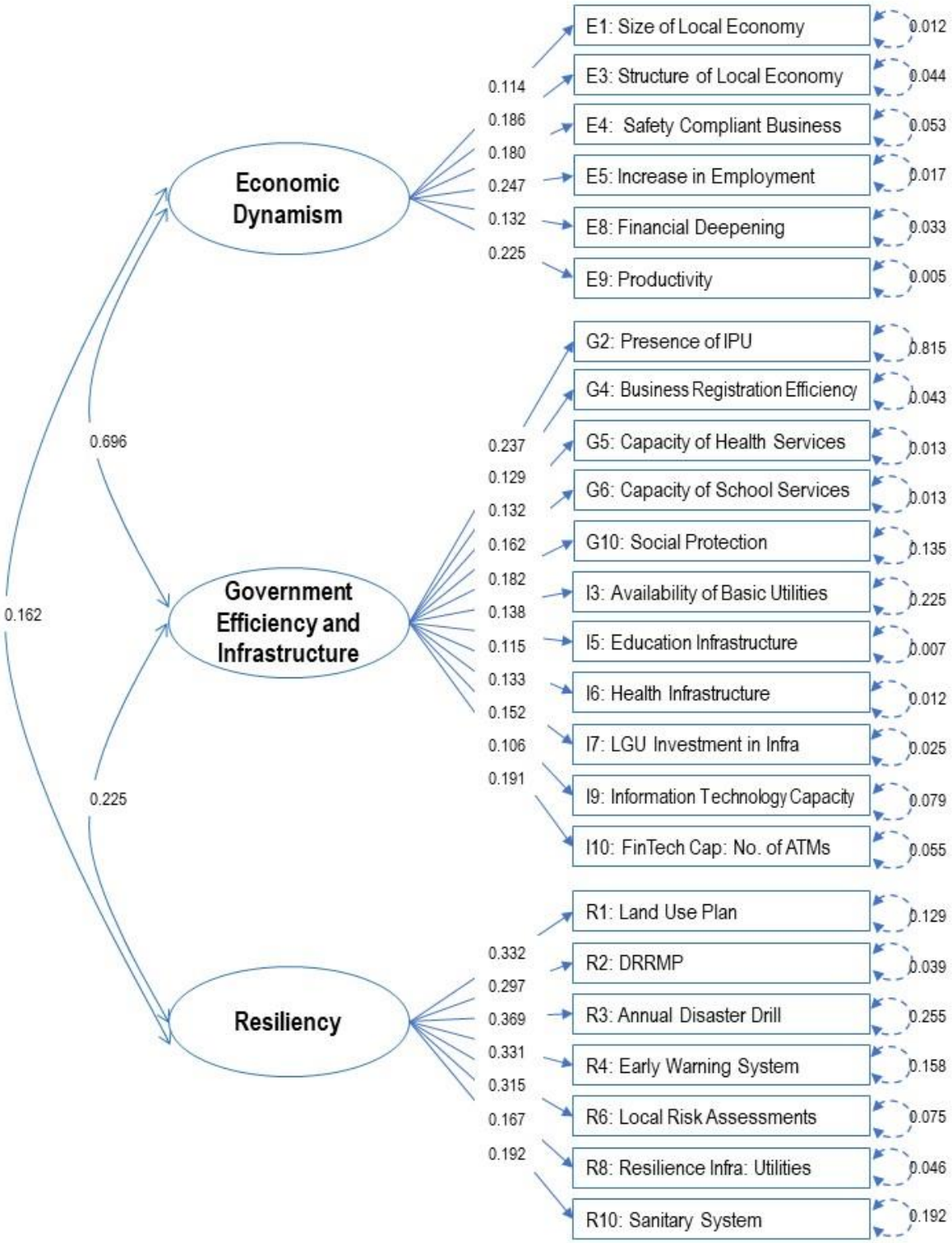
4. Reduced three-factor Model (Model 4)

Here we combined all indicators of Government Efficiency and Infrastructure. In doing this, the issue of an NPD covariance matrix was no longer a problem.

It is to be noted that Model 4 still had a less than satisfactory fit if the proposed cutoffs are to be followed. Insofar as we have explored and modified possible factor structures of competitiveness, the source of unsatisfactory model fit is likely the inappropriateness or inadequacy of the measurable indicators themselves. However, this does not mean that the model lacks substantive utility. That Model 4 provided the best fit among all factor structures considered is an important finding in itself, and it can be further utilized to analyze the patterns of factor loadings, its consistency across the type of LGUs, and the correlates of competitiveness.

Figure 4 presents the path diagram for Model 4. The latent constructs are represented by ellipses, while the observed indicators are represented by rectangles. The values arrows from the latent constructs to their indicators refer to the standardized factor loadings, while the paths between pairs of latent constructs are the covariances. Finally, the dashed circles on the right of the indicators refer to the measurement errors, wherein a smaller value corresponds to more accurate estimates.

Figure 4
Reduced-three-factor Model (Model 4)



B. Testing Group Invariance

For the first test, the *p*-value is significant, suggesting that the fit of the weak invariance model is different from that of the configural model. Thus, the test rejects the hypothesis that the factor loadings are the same across groups. Moreover, the *p*-value in the second test is also significant, suggesting that it would be inadvisable to compare the latent means (or the competitiveness scores) across the three groups of LGUs. Table 6 shows the comparison of the invariance models.

Table 6.
Comparison of Invariance Models

Invariance	Df	AIC	BIC	Chisq	Chisq diff	Df diff	*P* value
Configural	996	-7639.5	-6042.1	4867.8			
Weak	1059	-6679.0	-5417.1	5954.3	1086.5	63	<2.2e-16***
Strong	1122	-4265.4	-3339.0	8493.9	2539.6	63	<2.2e-16***

*** significant: p < 0.0001

In general, the factor loadings and the latent means of the reduced three-factor model vary by the type of LGU. We thus refer to the factor loadings and covariance in Table 7 and intercepts in Table 8 generated from the configural model.

Several things are worth noting. First, the contribution of economic indicators to economic dynamism is most pronounced among HUCs/CCs, which may be explained by the high economic activity in these areas. Moreover, increase in employment, productivity, and the structure of the local economy are the most important indicators of economic dynamism, as evident in their respective factor loadings, most especially in HUCs/CCs and 5th/6th class municipalities.

Table 7
Standardized Factor Loadings and Covariance by LGU Type

Indicator	Income Classification			
	Cities	1st / 2nd	3rd / 4th	5th / 6th
Economic Dynamism				
E1 – Size of the local economy	0.243	0.040	0.093	0.079
E3 – Structure of the local economy	0.320	0.185	0.180	0.188
E4 – Safety compliant business	0.307	0.108	0.174	0.179
E5 – Increase in employment	0.453	0.157	0.163	0.285
E8 – Financial deepening	0.247	0.186	0.083	0.098
E9 – Productivity	0.407	0.123	0.174	0.216

Table 7 (Continued).

Indicator	Income Classification			
	Cities	1st / 2nd	3rd / 4th	5th / 6th
Government Efficiency and Infrastructure				
G2 – Presence of IPU	0.035	0.190	0.361	0.387
G4 – Capacity to generate local resources	0.288	0.161	0.099	0.111
G5 – Capacity of health services	0.252	0.126	0.043	0.074
G6 – Capacity of school services	0.329	0.110	0.027	0.040
G10 – Social protection	0.453	0.250	0.196	0.055
I3 – Basic infrastructure: existing road network	0.082	0.133	0.203	0.293
I5 – Education infrastructure	0.228	0.060	0.027	0.036
I6 – Health infrastructure	0.234	0.120	0.065	0.048
I7 – LGU investment in infrastructure	0.365	0.084	0.016	0.043
I9 – Information technology capacity	0.139	0.106	0.109	0.230
I10 – Financial technology capacity: no. of ATMs	0.405	0.194	0.163	0.091
Resiliency				
R1 – Land use plan	0.214	0.139	0.324	0.491
R2 – Annual disaster drill	0.208	0.109	0.303	0.476
R3 – Disaster Risk Reduction and Management Plan	0.203	0.267	0.368	0.553
R4 – Integrative early warning system	0.201	0.144	0.303	0.565
R6 – Local risk assessments	0.213	0.124	0.317	0.499
R8 – Utilities	0.161	0.167	0.163	0.211
R10 – Sanitary system	0.160	0.136	0.209	0.173
Covariance				
economy ~~				
government	0.908	0.961	0.698	0.700
Resiliency	0.128	0.255	0.226	0.229
government ~~				
Resiliency	0.138	0.28	0.392	0.592

Model fit: $\chi 2 = 4867.82$; RMSEA = 0.101; SRMR = 0.075; CFI = 0.770; TLI = 0.745

Table 8
Intercepts by LGU Type

Indicator	Income Classification			
	Cities	1st / 2nd	3rd / 4th	5th / 6th
Economic Dynamism				
E1 – Size of the local economy	0.155	0.031	0.059	0.049
E3 – Structure of the local economy	0.434	0.232	0.334	0.304
E4 – Safety compliant business	0.439	0.156	0.335	0.374
E5 – Increase in employment	0.403	0.137	0.176	0.301
E8 – Financial deepening	0.472	0.270	0.221	0.232
E9 – Productivity	0.347	0.100	0.145	0.202
Government Efficiency and Infrastructure				
G2 – Presence of IPU	2.444	2.042	1.807	1.587
G4 – Capacity to generate local resources	0.285	0.195	0.181	0.205
G5 – Capacity of health services	0.309	0.129	0.081	0.173
G6 – Capacity of school services	0.475	0.155	0.072	0.121
G10 – Social protection	0.534	0.353	0.630	0.124
I3 – Basic infrastructure: existing road network	2.124	2.178	1.805	2.006
I5 – Education infrastructure	0.361	0.113	0.068	0.094
I6 – Health infrastructure	0.355	0.169	0.110	0.097
I7 – LGU investment in infrastructure	0.474	0.194	0.068	0.166
I9 – Information technology capacity	0.627	0.358	0.492	0.662
I10 – Financial technology capacity: no. of ATMs	0.468	0.165	0.259	0.122
Resiliency				
R1 – Land use plan	2.369	2.383	2.293	2.111
R2 – Annual disaster drill	2.429	2.429	2.373	2.281
R3 – Disaster Risk Reduction and Management Plan	2.295	2.326	2.221	2.131
R4 – Integrative early warning system	2.483	2.444	2.377	2.262
R6 – Local risk assessments	2.465	2.464	2.398	2.257
R8 – Utilities	1.842	1.811	1.773	1.728
R10 – Sanitary system	1.835	1.741	1.544	1.396

C. Relationship Between LGUs' Competitiveness, IRA Dependency, and Household Poverty

Table 9 shows the standardized factor loadings and covariances, while Table 10 shows the regression estimates, based on the configural model with exogenous variables. First, when compared with Table 7, the standardized factor loadings and covariances changed, although not to a structural extent. Second, as expected, IRA dependency and household poverty were generally negatively associated with competitiveness, although the magnitude of this relationship varies by LGU type.

Table 9

Standardized Factor Loadings and Covariance by LGU Type Based on Configural Model with Exogenous Variables

Indicator	Income Classification			
	Cities	1st / 2nd	3rd / 4th	5th / 6th
Economic Dynamism				
E1 – Size of the local economy	0.193	0.03	0.074	0.083
E3 – Structure of the local economy	0.263	0.143	0.175	0.155
E4 – Safety compliant business	0.249	0.083	0.166	0.15
E5 – Increase in employment	0.362	0.12	0.265	0.143
E8 – Financial deepening	0.201	0.145	0.09	0.071
E9 – Productivity	0.325	0.095	0.202	0.155
Government Efficiency and Infrastructure				
G2 – Presence of IPU	0.029	0.16	0.375	0.325
G4 – Capacity to generate local resources	0.236	0.135	0.107	0.091
G5 – Capacity of health services	0.204	0.106	0.071	0.037
G6 – Capacity of school services	0.266	0.092	0.038	0.022
G10 – Social protection	0.367	0.21	0.052	0.163
I3 – Basic infrastructure: existing road network	0.064	0.112	0.279	0.179
I5 – Education infrastructure	0.184	0.05	0.034	0.022
I6 – Health infrastructure	0.189	0.101	0.045	0.054
I7 – LGU investment in infrastructure	0.295	0.071	0.041	0.013
I9 – Information technology capacity	0.112	0.089	0.219	0.097
I10 – Financial technology capacity: no. of ATMs	0.329	0.163	0.086	0.136
Resiliency				
R1 – Land use plan	0.203	0.134	0.485	0.319
R2 – Annual disaster drill	0.197	0.108	0.471	0.297
R3 – Disaster Risk Reduction and Management Plan	0.193	0.261	0.548	0.361
R4 – Integrative early warning system	0.19	0.144	0.559	0.297
R6 – Local risk assessments	0.202	0.121	0.493	0.311
R8 – Utilities	0.152	0.163	0.209	0.16
R10 – Sanitary system	0.151	0.13	0.171	0.205
Covariance				
economy ~~				
Government	0.873	0.954	0.666	0.59
Resiliency	0.006	0.239	0.198	0.149
government ~~				
Resiliency	0.023	0.262	0.587	0.359

Model fit: $\chi 2 = 5519.81$; RMSEA = 0.099; SRMR = 0.075; CFI = 0.756; TLI = 0.728

Table 10

Regression Estimates by LGU Type

Regressions	Estimate	Std. Err.	z-value	P-value
Cities				
Economy ~				
IRA Dependency ***	-2.242	0.588	-3.813	0.000
Household Poverty *	-0.018	0.008	-2.247	0.025
Government ~				
IRA Dependency ***	-2.35	0.587	-4.001	0.000
Household Poverty *	-0.016	0.008	-1.966	0.049
Resiliency ~				
IRA Dependency	0.776	0.556	1.396	0.163
Household Poverty ***	-0.028	0.008	-3.526	0.000
1st Class / 2nd Class				
Economy ~				
IRA Dependency ***	-3.798	0.413	-9.194	0.000
Household Poverty ***	-0.019	0.003	-5.786	0.000
Government ~				
IRA Dependency ***	-2.985	0.391	-7.628	0.000
Household Poverty ***	-0.014	0.003	-4.618	0.000
Resiliency ~				
IRA Dependency	0.504	0.421	1.196	0.232
Household Poverty ***	-0.013	0.003	-3.668	0.000
3rd Class / 4th Class				
Economy ~				
IRA Dependency ***	-3.766	0.707	-5.325	0.000
Household Poverty	-0.003	0.003	-0.994	0.320
Government ~				
IRA Dependency ***	-2.883	0.819	-3.518	0.000
Household Poverty	-0.004	0.004	-1.036	0.300
Resiliency ~				
IRA Dependency	-0.877	0.697	-1.258	0.208
Household Poverty	-0.005	0.004	-1.461	0.144
5th Class / 6th Class				
Economy ~				
IRA Dependency ***	-4.222	0.461	-9.154	0.000
Household Poverty ***	-0.009	0.002	-3.975	0.000
Government ~				
IRA Dependency ***	-3.837	0.535	-7.166	0.000
Household Poverty ***	-0.016	0.003	-5.9	0.000
Resiliency ~				
IRA Dependency ***	-1.495	0.456	-3.279	0.001
Household Poverty	-0.004	0.002	-1.58	0.114

Significant: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

V. Conclusion, Recommendations, Policy Implications

A. Conclusion

We conclude by going back to the study aims and the research questions that this study sought to answer and summarize the results and findings, as shown in Table 11.

Table 11
Summary of Results and Findings

Study Aims	Research Questions	Results and Findings
To determine the factor structure of competitiveness as a latent construct	Does competitiveness have sufficient unidimensionality?	Competitiveness is multidimensional. There is no evidence that the indicators load onto a single construct of competitiveness.
To demonstrate whether this factor structure holds regardless of the income classification of LGU (HUC/CC, 1st/2nd class, 3rd/4th class, and 5th/6th class)	Is there evidence that the factor structure of competitiveness differs by the type of LGU?	The test rejects the hypothesis that the factor loadings are the same across groups. Thus, the factor structure of competitiveness differs by the type of LGU.
To analyze the association between competitiveness and selected exogenous city/municipality-level variables	Are household poverty and IRA dependency significantly associated with competitiveness?	<u>IRA Dependency</u> The negative "effect" of IRA dependency can be seen on "Economic Dynamism" and "Government Efficiency and Infrastructure…" across LGUs of all income classes, but the effect among 5th/6th class LGUs is most pronounced. In addition, "IRA dependency" showed a negative effect on the "Resiliency" of the 5th/6th class LGUs' but not on their richer counterparts. <u>Household Poverty</u> Household poverty is generally negatively associated with competitiveness, although the magnitude of this relationship varies by LGU type.

1. Multidimensionality of Competitiveness

Competitiveness is multidimensional. There is no evidence that the indicators load onto a single construct of competitiveness.

2. Different Factor Structure of Competitiveness by Type of LGU

As we found that the factor structure of competitiveness differs by the type of LGU, we next summarize in Table 12 the indicators and the pillars they fall under, whose scores or loading differed depending on the type of LGU, followed by a brief discussion of each indicator.

Table 12
Summary of Results: Indicators' Scores Across Depending on LGU Type

LGU Type of Indicators with High Scores	Pillars and Indicators		
	Economic Dynamism	**Government Efficiency and Infrastructure**	**Resiliency**
High scores across LGU types		**G2**= Presence of IPU **I3**= Basic infrastructure: availability of basic utilities **I9**= Information technology capacity	**R1**= Organization and coordination: Land use plan **R2**= Organization and coordination: DRRMP **R3**= Organization and coordination: Annual disaster drill **R4**= Organization and Coordination: Presence of an early warning system that integrates professional responders and grassroots organizations **R6**= Resilience reports: Local risk assessments **R8**= Resilience infrastructure: Utilities **R10**= Resilience of system: Sanitary system
High scores among poor LGUs	**E3**= Structure of the local economy **E5**= Increase in employment **E9**= Productivity		
High scores among rich LGUs	**E1**= Size of the local economy **E3**= Structure of the local economy **E4**= Safety compliant business **E5**= Increase in employment **E8**= Financial deepening **E9**= Productivity	**G4**= Capacity to generate local resources **G5**= Capacity of health services **G6**= Capacity of school services **G10**= Social protection **I5**= Education infrastructure **I6**= Health infrastructure **I7**= LGU investment in infrastructure **I10**= Financial technology capacity: Number of Automated Teller Machines	

Table 12 (Continued).

LGU Type of Indicators with High Scores	Pillars and Indicators		
	Economic Dynamism	Government Efficiency and Infrastructure	Resiliency
High scores among rich LGUs and the poor LGUs but not those in between	**E3**= Structure of the local economy **E5**= Increase in employment **E9**= Productivity		

a. Indicators Associated with Competitiveness Across All LGU Types

(i) Government Efficiency and Infrastructure. These indicators include: G2= Presence of IPU, I3= Basic infrastructure: availability of basic utilities, and I9= Information technology capacity.

The above-mentioned indicators' strong association with LGUs across LGU types could be due to investments' contribution to sustaining and improving economic growth, introducing opportunities for innovation, and improving productivity (Ernst, 2002; Gonzales, 2017). Identifying the proper investment priorities is also key to accelerating economic growth (Khusaini, 2015).

Basic infrastructure, particularly utilities, is considered fundamental to spurring economic and social development and addressing poverty (ILO, n.d.). Information technology, on the other hand, does not only facilitate and lower the cost of gathering and using information but also changes the way goods and services are produced or provided (Porter & Miller, 1985).

(ii) Resiliency. The indicators associated with the competitiveness of LGUs regardless of income level are the following: R1= Organization and coordination: Land use plan, R2= Organization and coordination: DRRMP, R3= Organization and coordination: Annual disaster drill, R4= Organization and Coordination: Presence of an early warning system that integrates professional responders and grassroots organizations, R6= Resilience reports: Local risk assessments, R8= Resilience infrastructure: Utilities, and R10= Resilience of system: Sanitary system.

A land use plan serves as a guide on making the best possible uses of land resources, including tapping the synergies and complementation of such uses. The plan helps promote a balance between social and economic development, on the one hand, and environmental protection, on the other hand (FAO, n.d.). In addition to protecting the environment and minimizing pollution, effective urban planning and management could also ease congestion and enhance the provision of infrastructure and other services (UNHabitat, 2015).

As for disaster preparedness, a well-established system would save lives, prevent or minimize economic loss and destruction of assets. If disaster strikes, a sound Disaster Risk Reduction and Management Plan would help save cost on implementing relief and rehabilitation efforts (Luz, 2017).

(iii) Others. In addition to the pillars and indicators cited above, three indicators under "Economic Dynamism" --namely E3= Structure of the local economy, E5= Increase in employment, and E9= Productivity—are associated with the competitiveness both among the poor and rich LGUs but not the

LGUs in between. This phenomenon could probably be studied further, but for purposes of this research we also treat this set of indicators as being associated with the competitiveness of LGUs across LGU types.

Local economy dynamics are strong drivers of competitiveness in both Asian and Latin American cities. However, Asian cities tend to interact strongly with other cities while Latin American cities focus on developing local businesses (UNHabitat, 2015). As for the increase in employment, the rise in employment levels could increase aggregate demand, which could spur consumer spending and attract investments. This, in turn, may attract an increase in government spending, such as improving infrastructure (Economic Investigations, 2019). On the other hand, productivity drives growth and enhances income levels, which in turn promotes human welfare and well-being (WEF, 2016).

b. Indicators Associated with the Competitiveness of Poor LGUs

Economic Dynamism. The indicators associated with the competitiveness of poor LGUs are as follows: E3= Structure of the local economy, E5= Increase in employment, E9= Productivity. However, because they also appear to be associated with the rich LGUs, we considered them as being associated with all LGU types in this research.

c. Indicators Associated with the Competitiveness of Rich LGUs

(i) Economic Dynamism. These indicators are: E1= Size of the local economy, E3= Structure of the local economy, E4= Safety compliant business, E5= Increase in employment, E8= Financial deepening, and E9= Productivity.

As pointed out earlier, we discussed E3, E5, and E9 as being associated with the competitiveness of all LGU types. We shall discuss, then, E1, E4, and E8 in this portion.

As for the size of the local economy, which can also refer to the magnitude of the economic activities in a locality, its effects are akin to the structure of the local economy, which could manifest on the increase in employment, rise in aggregate demand, increase in consumer spending, and improved tax revenues for the local government.

As for safety-compliant business, as mentioned in the DTI Manual (DTI, 2019), this serves as a proxy for investment activities in an area through construction projects being done. Thus, the comments and observations made on the importance of investment apply here as well. For financial deepening, on the other hand, the presence of financial institutions ensures the availability of loans that encourage spending or investments, which lead to economic growth. The financial institutions also serve as intermediaries that facilitate financial transactions among the sources and users of money (Kinsella, n.d.).

(ii) Government Efficiency and Infrastructure. The indicators associated with the competitiveness of the rich LGUs are: G4= Capacity to generate local resources, G5= Capacity of health services, G6= Capacity of school services, G10= Social protection, I5= Education infrastructure, and I6= Health infrastructure, I7= LGU investment in infrastructure, and I10= Financial technology capacity: Number of Automated Teller Machines.

As for the capacity to generate local resources, it reflects the government's capability to fund and carry out priority programs and promotes self-reliance (USAID Philippines, n.d.).

We can categorize the following five indicators—G5, G6, G10, I5, and I6—as the provision of social welfare services. Some literature, however, also term them as part of social protection. For example, UNICEF (n.d.) points out that social protection entails providing accessible and quality healthcare, nutrition, education, and other essential goods and services. They help reduce and prevent poverty, address inequality, support human development, and improve social cohesion. On the economic aspect, social protection helps strengthen the labor force and spur economic growth (UN ESCAP, 2018). In addition to the social services mentioned earlier, social protection also addresses exclusion, which can help children have a "fair chance in life" (UNICEF, n.d.).

As for LGU investment in infrastructure, roads help ensure a safe and efficient flow of people, goods, and materials. The benefits manifest in improved employment and standard of living. Expenditure on road infrastructure also has a strong direct correlation with GDP. In a study conducted in the Slovak Republic, the researchers concluded that road infrastructure is a prerequisite for both FDI inflow and economic growth (Ivanova & Masarova, 2013).

As for the number of Automated Teller Machines, we can associate it with promoting the ease of withdrawing and depositing money which could help increase economic activity.

d. Indicators Associated with the Competitiveness of Rich and Poor LGUs but Not Those in Between

Economic Dynamism. The indicators associated with the competitiveness of rich and poor LGUs but not those in between are as follows: E3= Structure of the local economy, E5= Increase in employment, E9= Productivity. However, as mentioned above, because they also appear as being associated with the poor LGUs, we considered them associated with all LGU types in this research.

3. Association Between Competitiveness and Selected Exogenous Variables

a. IRA Dependency. IRA dependency has negative effects on Economic Dynamism and Government Efficiency and Infrastructure across LGUs of all income classes, but the effect among 5th/6th class LGUs is most pronounced. In addition, IRA dependency also showed a negative effect on the Resiliency of the 5th/6th class LGUs' but not on their richer counterparts.

IRA's negative effect could be attributed to the syndrome that some LGUs that become IRA-dependent tend to abandon or disregard other ways and means for raising revenues (Gaymaytan, 2001). This negative effect is compounded by what Canare (2016) observed that IRA has the least effect on increasing spending.

b. Household Poverty. Household poverty is generally negatively associated with competitiveness, although the magnitude of this relationship varies by LGU type. The adverse effect of poverty impacts the economy through low labor productivity, social welfare, and peace and order concerns, and in the longer term constrained economic mobility and hampered competitiveness (Annie

E. Casey Foundation, 2014). Angelsen and Wunder (2006) further states that one view of poverty is its characteristic lack of economic growth.

However, the causes and effects of poverty, on the one hand, and poverty's association with competitiveness, on the other hand, are complex. For example, Mitchell and Coles (2011) illustrate in continua the intertwined dynamics of poverty, environment, and gender issues, where upgrading the value chain for the rural poor's products could reduce mortality rates through improved income and better access to education and health services; help ensure resource viability through minimizing waste, pollution, and resource degradation, and elevate women's status in the community by enlarging their bargaining power through increased contribution to household income.

Thus, while poverty could hamper economic growth and hinder competitiveness, promoting economic growth, coupled with reducing inequality, is one way to alleviate poverty. (Angelsen & Wunder, 2006). In a similar vein, Mitchell and Coles (2011) point out that social protection programs and policies help strengthen the rural labor market and enable poor households to move out of poverty. On the other hand, implementing poverty alleviation programs could help spur economic growth and consequently improve competitiveness. A study by Domingo et al. (2019) established the link of how poverty alleviation programs could improve the lives of households and help secure a better future for their children. Largo et al. (2001) support this view as they point to the importance for the LGU to focus on the quality of life as an essential factor in improving its competitiveness.

We can illustrate the link between improving family income and competitiveness and, going around the circle, how improving competitiveness could further promote family welfare, as follows: when family income improves, the spending increases, which stimulates economic activity that, in turn, raises local revenue, which then can fund programs and investments intended for enhancing both competitiveness and expenditures for social welfare and protection, which then further strengthen the family and improve their earning capability.

On the whole, addressing poverty and improving social protection help address social and economic issues that could contribute to the competitiveness of LGUs, while, in turn, enhancing the competitiveness of LGUs could help address poverty and improve social protection. We could, then, view poverty alleviation and social protection as means and ends of competitiveness.

4. Other Findings

a. Low Factor Loadings. The generally low factor loadings suggest that the indicators do not sufficiently capture the latent variables under study (Brown, 2006).

b. Strong Correlation Among the Pillars. Government Efficiency and Infrastructure were flagged for having a nonpositive definite (NPD) covariance matrix, indicative of high correlation or model misspecification, prompting us to combine all Government Efficiency and Infrastructure indicators into one pillar. We also found a strong correlation, on the one hand, between "Economic Dynamism" and "Government Efficiency and Infrastructure" and between "Government Efficiency and Infrastructure" and "Resiliency," on the other hand.

B. Recommendations

1. To address the generally low factor loadings, DTI-NCC could explore other indicators or other ways of measuring the existing indicators, which could also help address the strong correlation among the pillars. In addition, to address the strong correlation among pillars, DTI-NCC could explore regrouping the indicators among the current pillars or consider adding new pillars or removing and combining others, while ensuring that indicators and sub-indicators are not duplicates or close proxies of each other.

2. While measuring and monitoring the indicators and the pillars that they support are essential, equally important are keeping the foundation strong on which the pillars stand and preventing or addressing factors that may erode or weaken such foundation—such as the need to address poverty, social protection, and resilience.

3. Similarly important as specifying what needs to be measured and monitored is how the data are gathered. To help promote quality and timely data and information in developing, implementing, and reporting the results of a scoring management system, Rayel (2008) recommended routinizing the collecting, processing, and reporting of data and integrating them in the ordinary course of an organization's workflow. Thus, we need to establish approaches such that data gathering is made part of the regular operations of the LGUs and not as an ad-hoc task or procedure.

4. As this study recommended in No. 1 above reviewing and improving the framework, pillars, and indicators of the CMCI, this study adopts Rayel's (2008) approach when transitioning from a current system that needs to be improved towards the desired system and, thus, further recommends that DTI-NCC plans four phases to include (a) implementing an interim system, (b) working towards an ideal system—laying the groundworks and requirements needed, (c) developing the ideal system, and (d) updating the system and identifying the factors that would trigger such updating.

5. Noticeably absent in the indicators is the available human resource competencies and skills in an LGU, which Ketels (2016) points out as a core component in many competitiveness frameworks. So, this study recommends including human resources-related indicators in the Philippines competitiveness framework.

6. Future research:

a. In improving the conceptualization and correlates of competitiveness of cities and municipalities in the Philippines, this paper recommends to conduct research that compare potential alternative models and aim for a model: (i) with the strongest explanatory power, (ii) that is most parsimonious, and (iii) that can be done fastest, most easily, and with the least cost compared to others;
b. To address the findings on the association of the indicators with particular LGU types, this paper recommends to study if and why some indicators are associated with the competitiveness of rich and poor LGUs but not the LGUs in between, and
c. To address the findings on the regression analysis between the pillars and the exogenous variables, this paper recommends to study if and why the "effect" of IRA Dependency and Household Poverty on the pillars are the same among the rich LGUs (Cities, 1st/2nd Class Municipalities) and the poor LGUs (5th/6th Class Municipalities) but not the LGUs in between.

C. Policy Implications

1. As some indicators associated with LGU competitiveness are common across LGU-types while others are specific to particular LGU-types, the policies to improve LGU competitiveness are likewise to be targeted, accordingly, either across LGU-types or to specific types of LGUs.

2. As we have earlier pointed out, because improvement in poverty and social protection both drive LGU competitiveness and results from it, policies need to embed poverty and social protection as LGUs' priorities regardless of LGU type. These need to be in addition to the Resiliency indicators that came out in this study as having high scores. The importance of also embedding Resiliency indicators across LGU types is expounded by DTI-NCC when it explains the purpose of the Resiliency pillar as enabling the LGU to achieve its aims "despite the shocks and stresses it encounters" and to sustain its gains (DTI, n.d.). We do not wish to see a non-resilient LGU sliding back to where it began or even in a worse situation every time risk or disaster strikes.

3. Another set of indicators that appeared as associated with LGU competitiveness regardless of LGU-type are: (a) under the Economic Dynamism Pillar—Structure of the local economy, Increase in employment, and Productivity, and (b) under the Government Efficiency and Infrastructure—Presence of IPU, Basic infrastructure: availability of basic utilities, and Information technology capacity. While the indicators are the same, the policies intended to address, establish, or enhance those indicators need to recognize the peculiarities of the LGUs. The distinctive LGU features may include what Ketels (2016) cited, such as geographic considerations, presence and characteristics of firms, physical infrastructures, institutional quality and capacity, and human skills.

4. Considering what Gaymaytan (n.d.) and Canare (2016) cited as the negative effect of IRA dependency on some LGUs, the formula for computing IRA may need to be reviewed to include the LGUs' success indicators in generating own funds, particularly from local economic activities.

5. LGUs may consider pursuing policies that encourage cluster development and interlinked systems between or among LGUs to tap economies of scale and take advantage of natural endowments that cut across geopolitical divisions (UNHabitat, 2015). Further on, the linkages may extend among LGUs within the Philippines and other cities in the world—to tap the mutual benefits and advantages of local and international networks (Largo et al., 2001).

6. To promote sustainability and minimize environmental degradation, LGUs are encouraged to promote and pursue policies on green technologies (UNHabitat, 2015).

With the above recommendations and policy initiatives, the Philippine government, through DTI-NCC, could indeed pursue competitiveness as a strategy for economic development, as a basis for improving public service, and as an approach for improving welfare.

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