UP School of Economics
Discussion Papers

Discussion Paper No. 2021-02 July 2021

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One-upmanship in local responses to the COVID-19 pandemic

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Don't let a "good" crisis go to waste: One-upmanship in local responses to the COVID-19 pandemic*

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Abstract

Unlike in previous crises, the COVID-19 pandemic has wrought a crisis affecting all population groups, all economic sectors and all jurisdictions in the Philippines, as elsewhere. The impact of the COVID-19 vary across localities, however, partly due to differences in local government responses to the pandemic. Our objective is to examine the patterns in the types and timing of local responses among neighboring local government units (cities) for evidence of one-upmanship among their incumbent leaders (mayors). We assembled data for 25 selected cities and then grouped them into 28 neighborhood clusters. Using three indicators, we measure the immediacy, primacy and distinctiveness of the local responses within each cluster over the period March 2020-March 2021. Of the 28 clusters, we find in 19 (67.9 percent) evidence of one-upmanship consistent with the view that the type and timing of local responses are driven by mayors who wish to signal their talents and abilities. Further, mayors who face greater election competition pressures (low vote margin, many rivals) tend to implement responses ahead or uniquely of others. Thus, some leaders are able to turn the COVID-19 crisis into an opportunity to demonstrate their competence to their constituents, presumably to improve their popularity and re-election prospects.

Key words: COVID-19 pandemic, local responses, one-upmanship, yardstick competition, Philippines

JEL Codes: D72, H73, I18

* This paper is prepared for the book-in-progress "Lockdown and Lowdown" edited by Dr. Rosalie Alcala Hall. The thoughtful comments and suggestions of Dr. Paul Hutchroft, Dr. Rosalie Alcala Hall and an anonymous referee on an earlier draft are gratefully acknowledged.

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1. Introduction

Supposedly Albert Einstein once said, "In the midst of every crisis lies great opportunity." It is perhaps comforting to know many government leaders, judged by their actions in the midst of the COVID-19 pandemic, seemingly have taken the words of the great genius to heart. Unlike in previous crises, the COVID-19 pandemic has wrought a crisis affecting all population groups, all economic sectors and all localities in the Philippines, as elsewhere. Moreover, it forced the national government (NG) to make the hard choice between, on the one hand, the health and lives of the Filipinos, and, on the other, their mobility and livelihood. Prioritizing the health and lives of the people proved the prudent choice as the NG adopted quarantine and various public health measures to contain the spread of the virus. To mitigate the economic hardships during the lockdowns, it distributed *ayuda* (cash transfers) to households and informal economy workers[1], extended tax payment periods[2], controlled price increases[3], encouraged firms to be lenient in their collection of fees, credits or rents, and at the same time extending some relief to small-scale and medium enterprises[4]. In these efforts, the NG was assisted by local governments, private sector, international development agencies, and foreign governments. Notwithstanding their joint efforts, the COVID-19 crisis exacted a heavy toll to the country.

As of April 2021, there are a total of 1,037,460 confirmed COVID-19 cases, of which 17,234 ended in deaths, while the rest recovered (Department of Health, 2021). Unemployment rate reached a record high of 17.7 percent in April 2020, which is equivalent to 7.3 million jobless Filipinos. In 2020, the economy contracted by 9.6 percent, reversing a decade-long growth trend (Philippine Statistics Authority, 2021). The pandemic is also expected to wipe out the hefty improvements in poverty rate achieved in 2019. In addition, about 30.7 percent of Filipinos have

[1] Republic of the Philippines. DILG-DBMDOLE-DSWD-DA-DTI-DOG Joint Memorandum Circular No. 1, Series of 2020 "Special Guidelines on the Provision of Social Amelioration Measures by the Department of Social Welfare and Development, Department of Labor and Employment, Department of Trade and Industry, Department of Agriculture, Department of Finance, Department of Budget and Management, and Department of the Interior and Local Government to the most affected residents of the areas under Enhanced Community Quarantine." Accessed from: https://www.officialgazette.gov.ph/downloads/2020/03mar/20200328-JOINT-MEMORANDUM-CIRCULAR-NO-1-S-2020.pdf

[2] Republic of the Philippines, Bureau of Internal Revenue. Revenue Memorandum Circular No. 30-2020, dated March 23, 2020, "Amending Revenue Memorandum Circular (RMC). No 29-2020 and Clarifications on RMC No. 28-2020 relative to the Extension of Deadlines for the Filing of CY 2019 Income Tax Returns and Other Various Returns and Payment of Taxes Due Thereon". Accessed from: https://www.bir.gov.ph/images/bir_files/internal_communications_2/RMCs/2020%20RMCs/RMC%20No.%2030-2020_copy.pdf

[3] Republic of the Philippines. DA-DTI-DOH Joint Memorandum Circular No. 2020-01, dated 18 March 2020, "Price Freeze under a State of Calamity throughout the Philippines due to the Corona Virus Disease 2019 (COVID-19)". Accessed from: https://dtiwebfiles.s3-ap-southeast-1.amazonaws.com/Advisories/190320_JMCCOVIDPriceFreeze.pdf

[4] Republic of the Philippines. Department of Trade and Industry Memorandum Circular No. 20-12, dated 04 April 2020, 'Guidelines on the Concessions on Residential Rents: Commercial Rents of MSMEs", https://dtiwebfiles.s3-ap-southeast-1.amazonaws.com/COVID19Resources/COVID-19+Advisories/040420_MC2012.pdf; Memorandum Circular No. 20-29, dated 2 June 2020, "Supplemental Guidelines on the Concessions of Residential Rents and Commercial Rents". Accessed from: https://boi.gov.ph/wp-content/uploads/2020/06/MC-20-29.pdf

experienced hunger in September 2020, which then eased down to 21.1 percent in December of the same year (Social Weather Stations, 2020).

The spread is faster in densely populated areas, like in Metro Manila, Metro Cebu, Baguio and Davao. Yet, even within these areas some variations in their epidemic curves are observed. For example, the Metro Manila cities of San Juan, Manila, Quezon, Marikina and Mandaluyong were the earliest to face the COVID-19 threat and, as will be shown below, then contained it at different paces. Arguably, their relative success may be due to many factors, including the initial health, wealth, composition and distribution of the local population, the fiscal and human resources of the local government, and the quality of local leaders.

Mass media and online sources are replete with daily news about incumbent governors, mayors and other local leaders initiating programs, projects and activities amidst the crisis. Some of these local efforts are prompted by national directives, while others are largely local initiatives conditioned by the community-level contagion. Possibly some leaders are driven by compassion for their constituents, others by sense of duty, and several by personal ends. Their motives behind the local responses, however, are not directly observed.

Our objective in this paper is to examine the patterns in the types and timing of local responses to the COVID-19 pandemic among neighboring local government units (cities) for evidence of one-upmanship among their incumbent leaders (mayors). Specifically, we investigate if the patterns are consistent with the view that a mayor can credibly demonstrate her competence, talent or ability to their constituents by out-doing her fellow mayors who also face the same crisis. By turning the health crisis to an opportunity to exhibit competence (or compassion), an incumbent can improve her popularity and perhaps secure another term. The converse can also be expected: an incumbent who faces no prospect for re-election will be less inclined.

To meet our objective, we selected 25 cities all over the country, and paired them up according to contiguity to come up with 28 clusters. While we selected the cities in Metro Manila, and in some parts of Central Luzon, Western Visayas, Central Visayas, and Northern Mindanao to capture the range of local responses in various settings, they are not meant to be representative of all cities in the country. We chose "neighboring" localities (i.e., clusters) that either share a land border or have same political or economic prominence in the same province or region. Thus, a city that shares a border with two or more LGUs may be credibly compared to only one of its neighbors, owing to similarities in their population sizes, COVID-19 cases or fiscal capacities, say. Two regional centers, though physically distant, may be often compared together than with other nearby LGUs. Our limited sample does not permit us to test statistically for causality or tease out the confounding effects of other factors on the correlation of local responses. It is nonetheless

rich enough to provide prima-facie indications of one-upmanship among mayors and that can perhaps add grist to the discussion of local government behavior during the pandemic.[5]

Specifically, based on three indicators that measure the immediacy, primacy and distinctiveness of the local responses within each cluster over the period March 2020-March 2021, we find in 19 (67.9 percent) of the 28 clusters evidence of one-upmanship, the view that the types and timing of local responses are motivated by desires of the mayors to signal their talents and abilities. We also find evidence that mayors who face relatively greater electoral pressures (low vote margin, many rivals) tend to implement responses ahead or uniquely of others.

2. COVID-19 pandemic and government responses in the Philippines

While even before the COVID-19 pandemic the Local Government Code of 1991 broadly circumscribes the health roles and responsibilities as well as the fiscal resources of LGUs, and their relationships with the NG and among themselves (Diokno, 2012; Llanto, 2012; Capuno, 2017), other factors influence local government responses to it. . Two of these are the local surges in COVID-19 cases, and the NG efforts to contain the spread of the disease and to mitigate its socioeconomic impact. Here we briefly reprise key aspects of these two factors, and the responses of select local government units (LGUs). Further, we note that some LGUs exhibit similar types or timing of responses more often than others, which hint other catalysts at work.

2.1 Onset and spread of COVID 19 cases

The first local case of COVID-19[6] in the Philippines was confirmed on 30 January 2020. The patient was a tourist coming from Wuhan, China, who arrived at the country nine days prior and had gone to Cebu, Dumaguete, and Manila (ABSCBN News 2020). Then on 2 February 2020, l the disease claimed its first local casualty, who was another tourist from Wuhan. This was also the first casualty outside China (BBC News, 2020). Since the Philippines then had no technology to conduct its own COVID-19 tests, it was only after month when government officials were able to confirm local transmission on 7 March 2020 as the Department of Health (2020) reported the 6th local case.

With the sharp resurgence in new daily cases since March 2021, the official tally as of 1 May 2021 posted a cumulative total of 1,046,653 cases in the country. Of the total, 957,051 (91.1

[5] See, for example, Weiss et al. (2021), Espia, Gera and Alcala Hall (2021), Bulao and Bulao (2021), Calimbahin (2021), and the articles in the same journal issue.
[6] The diseased caused by the novel coronavirus 2019 (SARS-COV2).

percent) had recovered and 17,354 (1.7 percent) had died. Over the week leading to 1 May 2021, daily COVID-19 cases averaged at over 8,000 cases.

[Insert Figure 1 here.]

Figure 2 and Figure 3 shows the trends in the COVID-19 confirmed cases in selected LGUs in Metro Manila and outside it, respectively. Roughly following the national trends, the seven-day moving averages in most of these LGUs first peaked in August-September 2020 and then again in March-April 2021. There are, or course, some variations across LGUs. The uptick in cases was observed earlier in the cities of San Juan, Manila, Quezon, Marikina and Mandaluyong than elsewhere in Manila, and in the cities of Cebu and Mandaue than in Lapu-Lapu, for example. Iloilo experienced a longer period of high daily cases than Bacolod from August to December 2020. Besides the timing and type of the viral infections in these localities, the differences in local trends could be due to the peculiarities of the local population, including its initial health, wealth, composition and distribution, the fiscal and human resources of the local government, and the quality of local leaders.

[Insert Figure 2 here.]

[Insert Figure 3 here.]

2.2 National government efforts

As the pandemic affected the Philippines, the NG adopted drastic public health and economic measures. Following an advice of the World Health Organization (WHO) and the examples of other countries, the NG in early March 2020 put the country under a State of Health Emergency to contain the spread of COVID-19. Then, the NG remobilized the Interagency Task Force on Emerging Infectious Diseases (IATF-EID) to ensure "inter-sectoral collaboration to establish preparedness and ensure efficient government response to assess, monitor, contain, control, and prevent the spread" of COVID-19 in the country (IATF-EID, 2020). On 12 March 2020, the IATF-EID passed Resolution No. 11, s. 2020 that introduced a code alert system, and recommended the following: (1) extension of suspension of classes in Metro Manila; (2) prohibition of mass gatherings; (3) imposition of community quarantine in the entirety of Metro Manila, (4) suspension of work in the Executive Branch and formation of skeletal workforces, (5) implementation of flexible work arrangement in the private sector, (6) imposition of guidelines in mass public transports, and (7) suspension of land, domestic air, and domestic sea travel to and from Metro Manila. Shortly afterwards, Metro Manila was put under enhanced community

quarantine (ECQ)[7], the whole country put under State of Calamity, and then the whole of Luzon also under ECQ. Reputedly, the Philippines had one of the longest and strictest lockdowns in the world (Hapal, 2021).

Further to lockdowns, the wearing of masks and face shields, and physical distancing were strictly enforced by the police and the military. Occasionally, the NG even intervened directly in LGU operations. Notably, the President ordered the establishment of emergency operations center in Cebu City in July 2020 (Yumol, 2020), and in Bacolod City in August 2020 (Guadalquiver, 2020). Based on its daily monitor of cases of infections, hospitalizations and deaths due to COVID-19, the IATF makes periodic assessments and recommendations about the quarantine classifications to apply to different localities. It also developed guidelines for testing, tracing, isolating and treating COVID-19 patients and those exposed to them. Then, as early as November 2020, it began drafting the protocols for the procurement, distribution and administering of vaccines once they become available.

Early on, the NG also realized that the quarantine and other public health measures will inadvertently reduce social interactions and market transactions, resulting in the loss of livelihood and employment to many people. To help them, the government enacted Bayanihan to Heal as One Act (R.A. 11469) (Bayanihan 1) and the Bayanihan to Recover as One Act (R.A. 11494) (Bayanihan 2). These laws allowed President Rodrigo Duterte until June 2021 to realign unused funds from the 2019 and 2020 national budgets to extend cash assistance to households and workers, reliefs to small firms, and finance other activities (Parrocha, 2020; Cervantes, 2020; Guild, 2021).

2.3 Roles and responses of LGUs

Besides implementing the lockdown, cascading health advisories to local communities, mobilizing health personnel and other resources to attend to the vulnerable or infected population, tracing and isolating the suspect or confirmed cases, and distributing *ayuda* (cash transfers) to households, were some of the activities that LGUs undertook, partly in line with their devolved health service responsibilities. Other succeeding local health interventions include constructing isolation facilities, pre-enlisting the target priority groups for vaccination, setting up their own vaccination sites, and then eventually administering the jabs (Department of Health 2021).

[7] The ECQ is the most stringent quarantine of the community quarantine classifications as it suspended mass public transport as well as restricted land, air, and sea travel. Arranged from most stringent to least, the other quarantine classifications are: Modified Enhanced Community Quarantine (MECQ), General Community Quarantine (GCQ), and Modified General Community Quarantine (MGCQ). However, through the course of the pandemic, the NG introduced hybrid classifications such as the GCQ with heightened restrictions, which is considered to be in between MECQ and GCQ.

Beyond simply carrying NG directives out, some LGUs however exercised their autonomy by introducing innovations to suit their capacities and their constituents' conditions. Figure 4 and Figure 5 show the types and timing of the pandemic responses of the LGUs in Metro Manila and out of Metro Manila. Following Hale et al. (2021), the local responses are broadly classified as containment measures, health system response, economic response, and miscellaneous. The containment measures were mostly implemented early in the pandemic in compliance with, or sometimes even preceding, national directives. Some of the health system, like setting up of testing centers or vaccination centers, and economic responses, like distribution of cash or food assistance to households, are also modifications or extensions of national interventions. Many occurred in the early months of the pandemic when, as Figure 2 shows, local cases were fewest over a 12-month period beginning in late March 2020, and when lockdown measures were strictest and little is known about the epidemiology of the virus. The other local initiatives that soon followed include mental health support, internet connection subsidy for students forced to study at home, creation of bicycle lanes, and setting up online platforms for transacting with city hall. Other specific initiatives like city crematorium are calibrated to address local shortages.

Two further observations can be made from the heat maps (Figure 4 and Figure 5). These are the apparent spatial clustering and temporal clustering (in-syncing) of the local responses. On the face of it, the coincidence of local responses, especially among neighbors, may have been due to their mutual viral exposure or to same quarantine classification. For example, some Metro Manila LGUs each issued ordinance between 3 and 29 April 2020 that prohibit and penalize the discrimination against of COVID-19 patients and medical frontline workers following reports of their harassment and discrimination (CNN Philippines, 2020). Yet, as will be shown in succeeding sections, some LGUs appear more in-sync together than with their other neighbors.

[Insert Figure 4 here.]

[Insert Figure 5 here.]

3. Review of relevant literature

The public health literature abounds with cases from both developed and developing countries of various local initiatives that address the many challenges posed by the pandemic. These studies focus more on the *how*s of the local responses, and implicitly consider the lives and livelihood of the population to answer *why*s local government do what they do. Studies on the political economy of crisis, including the COVID-19 pandemic, expound on the reasons for the varied responses of sub-national (or local) governments, not otherwise fully explained by their

exposure to common health risks and the same policy environment (see, for example, Weiss et al. (2021), and the other papers in the same volume).

Of the four main public health strategies undertaken in January-April 2020 in many countries against the COVID-19 outbreak, Tabari et al. (2020) note that sub-national governments are commonly involved in crowd control and care facilities.[8] Based on their review of successful policies, they cited some of the important features as the diminishing of social gatherings, quarantining, postponing of events, and constructing of sufficient care facilities. By late 2020, as news on the availability of vaccines came to light, the policy focus shifted towards implementing a population-wide vaccination program. To help build the public's trust in the vaccine, the sub-national governments were seen as the major conduit for localized public education, and local public officials as role models for the vaccine-hesitant populations (Cordero, 2021).

To be sure, not all localized health interventions against the pandemic are mandatory. Despite their widely publicized potential impact, not all sub-national governments adopted them at once, which partly accounts for the wide differential disease incidence across localities. A notable example is the case of New York and California, which implemented a stay-at-home order and stricter social distancing protocol earlier than New York. New York's failure to adopt these health measures in timely manner cited as a reason for why, as of April 2020, its COVID 19 cases are nine times and its fatalities are fourteen times greater than California's (Tabari et al., 2020).

In the Philippines, Tabalis et al. (2021) analyzed some characteristics that explain the adoption and relative success of non-pharmaceutical interventions of selected LGUs. They found that among the factors correlated with the timely implementation of lockdowns, establishment of quarantine facilities, public information campaigns and monitoring efforts, the critical ones appear to be the working population, population density, health service capacity (ICU beds, doctors and frontline health workers), and GDP. The importance of adopting the right health protocol is underscored in the case of Cagayan de Oro City and Iligan City. For choosing the more lenient General Quarantine over Iligan's ECQ during the few months of the pandemic, Cagayan de Oro reported three times more cases than Iligan, as of March 2021. On the political economy of local responses in the Philippines, Espia, Gera and Alcala Hall (2021) contrasted the hands-on approach of the NG in Cebu City, and its hands-off approach in Iloilo City, while Bulao and Bulao (2021) noted the existing institutional setup among Naga City and the surrounding LGUs that helped them collaborate during the pandemic. Closer to our own study is Calimbahin (2021), who suggested the various interventions in Manila as attempts of the incumbent mayor to prop up his popularity for a higher elective office.

[8] The other two are monitoring and public education.

The external factor identified in Tabalis et al. (2021) and Tabari et al. (2020) are mediated through local government decision-making before they translate into local responses, including non-pharmaceutical interventions. The mediation process is illumined further in political economy studies, which encompass political science and economics. As aptly put by the political scientist Lipscy (2020), quoting Thomas Hale, "*COVID-19 attacks the human body, but it is largely the body politic that defends us against it.*" One aspect of the body politic that is suitably analyzed during the pandemic is political leadership. According to the politics of crises of literature, the personalities, styles and competencies of political leaders are magnified in times of crises because the stakes of the political games are then raised (Boin et al., 2012).

In his model of the politics of COVID-19 pandemic, Lipscy (2020) emphasized three elements of crisis: threat, uncertainty, and time pressure. Due to time pressure, voters are not able to sort through the uncertainty to formulate a clear set of preferences for public policies. When the situation is rapidly evolving, some critical public decisions will already have been made even before voters have made up their minds. Consequently, fast-acting influential leaders and interest groups will have greater influence than collective preferences of the voters over policy outcomes. The resulting hypothesis, then, is that variations in responses to COVID-19 will be driven by the institutional biases of the incumbent leader as well as the distributive conflict among organized interest groups.

To the literature on politics of crisis, Smith (1998) introduces the views that a crisis is an opportunity for leaders to show off their abilities and get reelected. According to this model, when the leader's ability can affect the outcome of the crisis and voters' judge their leader's ability based on the outcome, then an incumbent leader will want to commit to a plan of action to improve her re-election chances. Leaders that fail to deliver will be viewed as incompetents and thus punished in the elections. In equilibrium, variations in responses to a crisis is driven by differences in leaders' abilities.

The model of Smith (2020) implicitly assumes that citizens use past performance of the incumbent in re-electing her. This assumption applies more to local responses before 2020 than now since the COVID-19 pandemic has brought in unprecedented challenges and circumstances. So, perhaps voters may usefully compare their incumbent's performance only with other contemporary leaders as each grapple their way through the same problem. This is the perspective of the yardstick competition (YC) model of Besley and Case (1995). The starting point of this model is information asymmetry between the voters and their incumbent leader concerning the latter's true competence and some fiscal aspects (e.g., cost of providing services). With only incomplete information, the voter may mistakenly ascribe a poor service delivery to higher unit costs instead of incompetence or misattribute to the leader's talents a good

performance that is due to favorable market or external conditions. Since the voters are better off electing a competent leader, regardless of the true cost of public service, they may use the performance of other leaders as a yardstick for assessing their own leader's. Cognizant of this, incumbent leaders, especially those in neighboring jurisdictions where information about local public services easily cross borders, will engage in YC to prove their competencies and thereby improve their reelection chances.

Early studies on YC among local governments in the Philippines are Capuno et al. (2015), and Kelekar and Llanto (2015). The former found evidence of YC among neighboring cities and municipalities by comparing the fiscal decisions of mayors who are and are not facing term limit (à la Besley and Case, 1995), and controlling for their membership in political dynasties. The latter investigated also other types of fiscal interaction in health spending in the Philippines.

There are now a few studies that show government responses to the COVID-19 have affected elections. The first obvious effect is in the holding of elections, considering the various quarantine measures and social distancing requirements imposed in different places. In their review of election in countries during the pandemic, Santana, Rama and Casal-Bértoa (2020) found that voter turnout has not generally declined when compared to turnouts in pre-pandemic elections. In some jurisdictions, voter turnout during the pandemic even increased (Bicu and Wolf, 2020). While puzzling, some scholars believe that the COVID-19 pandemic might have created a sense of nationalism, thus turning voting into "a nation-saving act" (Kim, 2020). Another possible effect is that government responses become election issues. In the last US elections, many believe the government's dismal COVID-19 record has not helped the campaign of then incumbent President Donald Trump (Herrera et al., 2020). In South Korea, the incumbent President Moon Jae-in was reelected in April 2020 following the country's successful COVID-19 response, which reportedly also enabled the government to deflect public attention from some scandals and the economic downturn (Lee, 2020). Meanwhile, Prime Minister Jacinda Ardern of New Zealand also won another term in October 2020 after her administration's well-lauded approach against the virus (Wilson, 2020).

4. Framing one-upmanship in local responses

Here we adapt the YC model (Besley and Case, 1995) to frame the observed spatial or temporal clustering of local responses to the pandemic. To be sure, many local response appear "in-sync" possibly because neighboring jurisdictions face the same threats of infections or impelled to act by the same NG directive. The clustering we want to explain here are the local responses of two or more LGUs from a larger group that appear more "in-sync" together than

with other group members (or neighbors). We take these similarities in types or timing of responses to manifest one-upmanship among incumbent leaders (mayors), who, by trying to outdo their peers, hope to convince their constituents of their abilities. To expound on the whys behind such a show of talent and how it then translate to voter's support, we build on the YC model.

4.1 The model in a nutshell

The setting is an electoral democracy. Consider a typical situation where the provision of a local public service depends on costs of inputs and the competence of the incumbent leader. The inputs will include those procured from the market (medical supplies, say) and those available in the local government (health personnel, say). The costs and range of inputs required are determined by market conditions or external factors (like procurement laws, DOH directives, etc.). Putting all these inputs together to produce a unit of service (swab test, say) would require the mayor's time and effort, which can be stretched depending on her innate competence (i.e., unobserved ability). A competent mayor can do more or better work than an incompetent one. But when a voter uses the service she cannot tell if the service is "bad" because of the external factors or the mayor's incompetence, or, conversely, it is "good" because of favorable market conditions or the mayor's superior talent. Typical signals like diplomas, awards, testimonials and speeches are only imperfect correlates of true competence, and they can be mimicked by the talented and duds alike. Since the voter knows she is better off with a competent leader, she will discount such signals and, instead, benchmark her leader's performance against the accomplishments of other incumbent leaders. Expecting to be compared, the local mayor then would attempt to outdo her peers. In turn, the other mayors may also step up their game. Consequently, public service provisions in their jurisdictions will appear in-sync.

According to Revelli (2005), the prediction of the YC model – in-synced local responses, in this case – rests on two crucial assumptions. First, the performance (service provisions, say) in the neighboring jurisdictions are observable and informative. And, the performance of the incumbent affects her popularity (i.e., probability of re-election). We expound of these assumptions in the Philippine setting.

4.2 Voters' and leader's characteristics

It is assumed that a typical voter has only incomplete information about the important characteristics of her local government and of the incumbent leader (Figure 6). Important local government characteristics would include fiscal resources, organizational capacity, bureaucratic processes, and even market conditions and the general policy environment (as they impinge on local government operations). As argued above, the leader's true competence is also not fully

observed. In the Philippine setting, the incumbent's desire to seek re-election is easily discerned; in fact, it can be safely assumed, since most seeks re-election and many stay on in the same office until their third consecutive term allowed under the law. Those who face term limit may run for a different office, field a family member to run for her vacated position, or possibly both. Incumbents who are eligible for re-election or members of political dynasties can be identified from public records. At this point, the setup is typical enough, but is not yet the setting for YC.

[Insert Figure 6 here.]

4.2 Observable and informative responses

To supplement her limited information, the voter may benchmark her leader's performance against the performance of other leaders. This requires that the benchmarks should be observable and informative. For a voter to know of what is happening in other jurisdictions she could be informed by others, updated from social media or traditional media, or personally visit those places. Access to such information depends, among others, on voters' characteristics, their social networks, and existing information facilities. Other things being equal, such information spill over more easily between neighboring jurisdictions (e.g., LGUs sharing a land border or those covered by the media in the same news).

For the observed neighbors' responses to be useful to voters in a locality, their own local government and that in neighboring jurisdictions should have comparable capacities (fiscal resources, say) and exposed to a common, exogenous shock. Were the shock specific only to one jurisdiction, happened in various places at different times or is within the politician's control, then the incumbent may claim "different problems merit different solutions", and thereby moot the benchmarking. Arguably the COVID-19 pandemic is a common, exogenous shock that most people would be aware of by now.

4.2 Incumbent's popularity

The incumbent will be impelled to outperform her peers if by doing so improves her popularity and thereby also her chances to another term[9]. Through social media, feedback from supporters, or personal interactions with voters, an incumbent may know if her programs are gaining attention. She can further calibrate her programs by mimicking others or being the first to innovate, and increase public awareness of them. The leaders in neighboring jurisdictions may be induced to behave likewise by their own constituents. Obviously, an incumbent who faces a term limit, has no desire of leaving a legacy (for her comeback or anointed successor, usually a family member), or has no plan of running for a higher office, would not care about how she would compare. The same can be expected of an incumbent who is secure in her position, as evidenced

[9] Or for a higher elective office for which the support of the same constituents matter.

by lack of credible political rivals or landslide victory in the previous election. Term limit, membership in political clans, voter turnouts are public records that can be used to establish the incumbent's electoral incentives.

4.2 Main hypothesis

The predicted outcome of the YC model is the spatial or temporal clustering of local responses to the common shock, so long as the local responses could affect the incumbent's electoral prospects. Put differently, one-upmanship in local responses is more likely to be observed between neighboring jurisdictions whose leaders are (or at least one of them is) up for re-election, and those who compare well against their peers are likely to be re-elected, *ceteris paribus*. To be held in constant are other drivers of local responses, perhaps more importantly the characteristics of the local population, fiscal and health service capacity, geography, and the city's strategic political or economic importance to NG (or national leaders). In the Philippine context, the motivation for one-upmanship includes extending the reign of the incumbent's political family. We describe in the next sections how we discerned patterns of local responses of select LGUs consistent the YC hypothesis.

5. Selection and description of cases

This section describes the data and methods we used to identify and analyze cases of local responses to the COVID-19 pandemic. To meet our research objective, we assemble and process the cases to find evidence of one-upmanship in local responses consistent with the YC hypothesis.[10]

5.1 Case selection and coverage

Our unit of analysis is an LGU, specifically a city. Per the Local Government Code of 1991, these LGUs have the mandates and capacities to address at least some of their constituents' concerns about the pandemic. Our period of analysis is from March 2020 to March 2021. In this period, many localities had their COVID-19 related cases of infections, hospitalizations or deaths, and all have faced some quarantine restrictions. As it were, all localities face a common shock (COVID-19 pandemic), and all media is replete daily with news (and views) about anything related to the pandemic.

While the YC assumptions of a common shock and public knowledge of it are thus met, , we choose LGUs that are "neighbors" to satisfy another assumption. When assessing their local government's responses, the residents presumably looked to adjacent towns or some other not-

[10] While desired, a formal statistical test of the hypothesis would require more data (responses per LGU plus their covariates) than we are able to assemble here.

so-distant places of similar political or economic status as their own (another key city in the province, for example). Even with this additional criterion however, the pool of potential cases is still larger than we can reasonably analyze in this study. From this pool, we purposively selected 25 cities.

These are the cities of Caloocan, Valenzuela, Quezon, Malabon, Navotas, Manila, San Juan, Mandaluyong, Pasig, Marikina, Makati, Pasay, Taguig, Parañaque, Las Piñas and Muntinlupa located in the National Capital Region (aka Metro Manila or NCR); Gapan and Cabanatuan located in the Central Luzon Region; Iloilo and Bacolod located in the Western Visayas Region; Cebu, Mandaue and Lapu-Lapu located in the Central Visayas Region; and Iligan and Cagayan de Oro located in the Northern Mindanao Region. Without any claim as to their representativeness, these cities are selected nonetheless to capture, if only partly, the possible range of local responses conditioned by the diverse geographic, demographic and socioeconomic factors that may influence the spread, severity and control of the disease across the country. Figures 2 and 3 above show the trends in the daily actives cases in each of them over a 13-month period starting in March 2020. This period, as indicated in Figure 4 and Figure 5 above, also witnessed the types and timing of the cities' mitigation and other coping measures.

5.2 Identifying LGU clusters

The heat maps (Figure 4 and Figure 5) only show the similarities in the responses of the 25 cities to the pandemic during the period under study. To sift from these evidence of YC, we further examine LGU "clusters", i.e., pairs or sub-groups of LGUs that appear to be more in-sync together than with others. We posit that, other things being equal, LGUs with highly correlated COVID-19 cases would exhibit homogenous or coincident local responses. Table 1 shows the correlation of daily additional COVID-19 cases for the NCR cities conveniently arranged from north to south and by proximity to one another (i.e., sharing land border). Table 2 shows the same correlation, but for the nine other cities under study. The correlation is generally higher between two or more LGUs with common land border than between two farther apart.[11]

Possibly, however, local residents benchmark their local governments against another, though physically-distant, they know to be of similar status or characteristics. For example, the people of Gapan, which is surrounded by municipalities, may match their city up with Cabanatuan or other cities in Nueva Ecija. As the premier city in Negros Occidental, Bacolod is often paired up with Iloilo City, arguably Bacolod's only real rival in Western Visayas. The peoples of Iligan and Cagayan de Oro are less likely to look up to Gapan or Cabanatuan, say.

[11] There are exceptions. For example, the correlation of cases between Caloocan and Valenzuela, and between Caloocan and Muntinlupa are both high (around 0.83). Note also that neighbors with different responses may result in low correlation in their COVID-19 cases.

Based on these notions on proximity, we identify from our list of cities 28 potential LGU clusters. Of these, 22 are in NCR, namely Las Piñas-Parañaque (LP-PQ), Pasay-Parañaque (PY-PQ), Makati-Taguig (MK-TG), Pasig-Manila (PG-ML), Mandaluyong-Makati (MD-MK), Muntinlupa-Parañaque (MN-PQ), San Juan-Mandaluyong (SJ-MD), Malabon-Navotas (MA-NA), Quezon-Pasig (QC-PG), Pasig-Mandaluyong (PG-MD), Quezon-Manila (QC-ML), Manila-Pasay (ML-PY), Manila-Makati (ML-MK), Navotas-Valenzuela (NA-VA), Malabon-Valenzuela (MA-VA), Muntinlupa-Las Piñas (MN-LP), Pasig-Manila-Quezon (PG-ML-QC), Quezon-Marikina (QR-MR), Manila-Navotas (ML-NA), Marikina-Pasig (MR-PG), Malabon-Caloocan (MA-CA), and Las Piñas-Muntinlupa-Parañaque (LP-MN-PQ). The six LGU neighbors outside NCR are Cebu-Mandaue (CE-ME), Mandaue-Lapu-Lapu (ME-LL), Cebu-Mandaue-Lapu-Lapu (CE-ME-LL), Iligan-Cagayan de Oro (IL-CD), Iloilo-Bacolod (II-BC), and Cabanatuan-Gapan (CB-GP). Note two neighborhoods have three members each (LP-MN-PQ, for example), and each overlaps with other two-member neighborhoods (MN-LP, LP-PQ, say). This allows us to examine if one-upmanship between LGUs is limited to two or more contiguous localities.

[Insert Table 1 here.]

[Insert Table 2 here.]

5.3 Classifying the local responses within LGU cluster

For each LGU cluster, we then examined the timing and types of their responses as they mutually face an evolving viral threat over the 13-month study period. We categorize their responses along three dimensions. The first dimension is immediacy to reflect how soon one LGU's response is followed by a similar response of its neighbor(s) within 31 days after the first. The second dimension is primacy to reflect the number of occasions an LGU was first to introduce a particular response that was soon mimicked by its neighbors. The last dimension is distinctiveness to account for the times when an LGU response is not followed or mimicked by its neighbors. Together, the three dimensions will help distinguish similarities in local responses driven by one-upmanship motives from other factors (national directives, say) since an incumbent, who wants to impress her constituents, would avoid being perceived as a laggard, a mere mimicker, or un-innovative relative to other leaders.

Corresponding to each dimension, we constructed three indicators and then estimated them for each of 28 LGU clusters. These are the Temporal Clustering indicator (T), Leadership indicator (L), and Innovativeness indicator (D). Conveniently, each indicator has a value that ranges from 0 to 1. Their operational definitions are shown in Box 1.

Box 1. Indicators of cluster responses

Consider a cluster of LGUs, each with 2 members. The local responses are classified by types, and let there be Q types ($q = 1,2,,,Q$). Let a q-type response of LGU j (j=1,2) be denoted as R_j^q. Within any cluster k, LGU 1 and 2 may or may not implement response q. Let $C_k^q = 1$ if R_j^q is implemented by at least one LGU. For the cluster, the total number of q-type local response implemented by at least one LGU is $C = \sum_q C_k^q$. Suppose over a period of time the LGUs exhibited responses. We classify their responses in terms of immediacy, primacy, and distinctiveness.

First, we characterize those responses of one LGU that are similar in types to those of the other LGU, and were made within 31 days (one month) after the first response (of the given type). We then characterize a pair of responses, one for each LGU, with an indicator S_{ij}^q that takes the value of 1 if R_i^q and if R_j^q are undertaken within 31 days of each other, 0 if the two were undertaken more than 31 days apart.

To measure the frequency of similar local responses in cluster k relative to the number of times when at least one of the LGUs undertook a response, we compute for Temporal Clustering Indicator (T_k):

$$T_k = \frac{\sum_Q S_{ij}^q}{C}$$

Additionally, we also characterize LGUs as either a "leader" or a "mimicker". To capture the primacy of the responses, consider two q-type responses, R_i^q and R_j^q, made at different times. Let $L_{ij}^q = 1$ if R_i^q preceded R_j^q, and 0 otherwise. By construction, thus, when L_{ij}^q= 1, the ith LGU is denoted as the leader for being the first to adopt the q-type response and the jth LGUs is the mimicker. When L_{ij}^q= 0, the ith LGU is the mimicker and jth LGUs is the leader. Derived over all those times when local responses in cluster k are similar, the Leadership Indicator of the ith LGU (L_i) is defined as

$$L_i = \frac{\sum_Q L_{ij}^q}{\sum_Q S_{ij}^q}$$

The Leadership Indicator for the jth LGU (L_j) is defined analogously. The leader in the cluster is whichever LGUs has the highest score in the leadership indicator.

Some local responses are distinct in type or timing. That is, they are neither copied nor followed by other LGUs. To account for distinct responses, let the binary indicator d_i^q take the value of 1 if R_i^q is unique or distinct when compared to the responses of other LGUs in the cluster. The binary indicator d_j^m is analogously defined, but where m is another response type. For the ith LGU, the uniqueness of its response is captured by the Innovativeness Indicator (D_i) given as

$$D_i = \frac{\sum_{q \neq m}^{Q} d_i^q}{\sum_{q \neq m}^{Q} d_i^q + \sum_{m \neq q}^{Q} d_j^m}$$

The Innovativeness Indicator for the jth LGU (D_j) is defined analogously. The innovator in the cluster is whichever LGUs has the highest score in the Innovativeness indicator.

Each of the three indicators have values that range from 0 to 1. As T_k approaches 1 (0), this implies LGUs undertake similar responses within (beyond) 31 days of each of other. As L_i approaches 1 (0), this means that the ith LGU is always the first (second) to respond. As D_i approaches 1 (0), this indicates that in all instances the ith LGU introduces unique (non-distinct) responses.

5.4 Other key characteristics

Evidence of clustering of LGU responses alone will not conclusively indicate one-upmanship induced by YC. For this, we further need to verify if the 25 cities satisfy the model's assumptions. Table 3 presents for each of them the COVID-19 statistics, personal and political profile of the incumbent mayor, fiscal profile, and population characteristics.

[Insert Table 3 here.]

The key LGU-level characteristics are the broad similarities in COVID-19 cases (per 100,000 population) and fiscal resources of neighboring LGUs. The demand for timely and appropriate local response to the pandemic may be inferred from the size and poverty of the local population. With over a million population each, Quezon, Manila and Caloocan are the three biggest. At around 60,000, Gapan's population is the lowest. In 21 cities, poverty rate is 5% or lower. It is above 10% in Iligan, Gapan and Cabanatuan.

The extent to which the local government will meet such demands may vary according to the incumbent mayor's personal characteristics. Nineteen of them are males; the youngest is 31 years old (Vico Sotto of Pasig), and the oldest is 74 years old (Imelda Aguilar of Las Piñas). More importantly, perhaps, are their political characteristics, including whether they are on their 3rd consecutive term in office (seven are), membership in a political dynasty (15 do), and the number of rivals (only Marcy Teodoro of Marikina and Emerson Pascual of Gapan had none) and vote margin over the closest rival, in the last election. Edgar Labella of Cebu at 3.17% had the lowest vote margin among the 25 mayors.

Another key assumption is that a locality's residents are aware of their LGU's responses and those in surrounding jurisdictions. To show this conclusively, a poll of the local population perhaps will be ideal. Unable to conduct a survey, however, we resort to social media and other publicly available information. Using Twitter trends dataset for the period 1 March to 30 September in 2020, we tracked for each city the number of daily tweets that mention the name of the mayor or city.[12] Figure 7 shows for each city the average daily tweets on those days when a local response is announced or implemented, and those for days when there are no new local response. Possibly, however, that some of the later tweets are also about previous local responses. Nonetheless, it is clear from the graphs that across cities local responses are associated with, if not generate, more tweets.

[Insert Figure 7 here.]

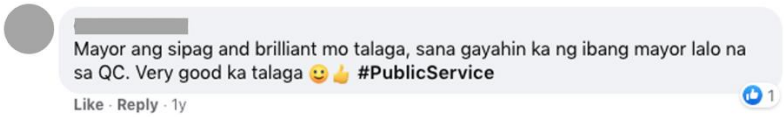
[12] Daily tweets refer to COVID-related hits on Twitter, as compiled in the GeoCov19 multi-lingual Twitter dataset developed by Qazi, Imran, and Ofli (2020). The Twitter trends dataset covers the period 1 March to 1 September 2020. Note that most of the local responses are observed in the first few months following the declaration in March 2020 of Luzon-wide lockdown.

Another piece of evidence that social media users compare their local governments with others are some anonymized verbatim quotes of Facebook comments shown in Box 2.

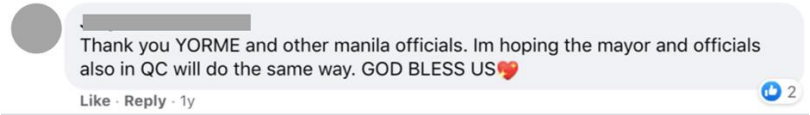
Box 2. Selected comments on local responses from social media

Social media posts are generally open to the public. The online pronouncements of mayors elicit feedback from their own constituents, and, sometimes, from residents of other localities. Through social media, some people are able to draw the attention of their local officials to notable COVID responses by other LGUs, as the verbatim quotes from Facebook and Twitter show:

Comparing Quezon City to Pasig City upon the implementation of the latter's mobile *palengke*

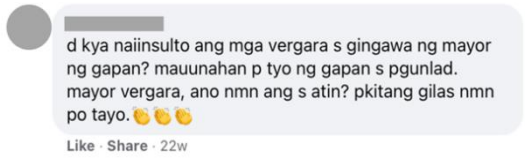


Comparing Quezon City to Manila City when the latter's elected officials donated their salaries to a public hospital



Comparing Bacolod City to Iloilo City upon the accreditation of the Western Visayas Medical Center (in Iloilo) to conduct COVID-19 tests

Comparing Cabanatuan City to Gapan City upon the installation of fiber cables in the latter to support work-from-home arrangements and online classes



Note: While the social media posts above are publicly available, the identities of those who posted them are blocked here for data privacy reason.

5.5 Data sources

We obtained information about the local responses of each LGU mainly from the Facebook pages of its Public Information Office (PIO) or Mayor.[13] From the latter, we also obtained other information about the incumbent's profile. We also checked for local responses from government

[13] See Appendix 1.

websites and newspaper accounts. We listed the local responses chronologically (based on dates of posting or reporting) as shown in Figure 4 and Figure 5. While some local interventions (e.g., swab testing) are the same, others are considered here as broadly similar if they have the same target beneficiaries or purpose. Under this scheme assistance to nurses are considered similar to aids extended to BHERT, while internet subsidy to students and teachers are lumped together.

Our other sources are the Department of Health (for COVID-19 cases), the Bureau of Local Government Finance (for fiscal data), Philippine Statistics Office (for population and poverty), and the Department of Interior and Local Government and the Commission on Elections (for election data). Information about local residents' feedbacks are obtained from Facebook and Twitter.

6. Sifting the evidence for one-upmanship

This section further analyzes the apparent interactions in local responses to sift evidence of one-upmanship. For meaningful comparisons, we further categorize the 28 clusters using the indicators of cluster responses (introduced above), and their accordance with the YC assumptions.

6.1 Classifying LGU clusters by YC assumption

Here an LGU cluster is taken to have satisfied the YC assumption related to the leaders' electoral incentives if the incumbent mayors are not yet on their third consecutive term in office and therefore still eligible for re-election, or a member of a political dynasty.[14] If one of the mayors in the cluster faces a term limit and is not a member of a political dynasty, then the cluster is considered here not in accord with the YC assumption. To illustrate, take the Manila-Pasig cluster. Their respective mayors – Francisco Domogoso (aka Isko Moreno) and Vico Sotto – are both first-termers, and thus presumably desire to impress their constituents. The mayors of Caloocan (Oscar Malapitan) and Muntinlupa (Jaime Fresnedi) both face term limit. But since the former belongs to a political dynasty, while the latter is not, then a cluster that includes Caloocan may or may not satisfy the YC assumption, while a cluster that includes the Muntinlupa definitely does not.

Table 4 shows the scores of the 28 LGU clusters in the three indicators and whether they met the YC assumption regarding the mayors' electoral incentives. Twenty four clusters satisfy the key YC assumption, and the four that do not are MN-PQ, MN-LP, LP-MN-PQ, and IL-CD. We

[14] An incumbent mayor is considered to be a part of a political dynasty if she is related by blood (at most second degree of consanguinity) or marriage to a previous or current mayor, governor, or member of Congress. Members of political dynasties often succeed each other in the same elective positions.

then divided the clusters into those with high scores in temporal clustering low ($T_i \geq 50\%$) and those with low ($T_i < 50\%$). While the cutoff is arbitrary, local responses that are in-synced more than half of time are plausibly linked. Nine LGU clusters have low temporal clustering scores.

With their temporal clustering scores and accordance with YC assumptions, we then grouped the LGU clusters into those that exhibit one-upmanship in local responses consistent with YC model, and those that exhibit one-upmanship not consistent with the model. There are 19 clusters in the first group. They are further subdivided into two sub-groups: those with high temporal clustering scores and satisfy YC assumptions (A), and those that have low temporal clustering scores and do not satisfy the YC assumption (B). The nine clusters in the second group are also subdivided into two, namely; those with high temporal clustering scores and do not satisfy the YC assumptions (C), and those with low temporal clustering scores and satisfy the YC assumption (D). Figure 8 illustrates the steps used to classify the clusters.

To fully account for the dynamics of local responses within a cluster, we further partitioned the sub-groups mentioned above into those clusters with an LGU that both the leader and the innovator, and in those where the leader is not always the innovator. Operationally, a leader is one with the highest leadership indicator within the LGU cluster, while an innovator is one with the highest innovativeness indicator within the group. Possibly, an LGU that failed to respond first may want to upstage the leader by introducing a different solution, while a leader-innovator faces a stronger pressure, as it were, to dominate the competition.

[Inset Table 4 here.]

[Insert Figure 8 here.]

6.2. High temporal clustering and YC assumption satisfied (A)

Of the 28 clusters, around 61% (17) have high temporal clustering indicators and satisfy the relevant YC assumption (Figure 8). Arguably this group presents the strongest evidence that the pattern of local responses conforms with the YC predictions. Put differently, the incumbent mayors engage in one-upmanship, as it were, to demonstrate their abilities to their constituents. Of the 17 clusters, 14 are in NCR, namely: namely; SJ-MD, MA-NA, QC-PG, PG-MD, QC-ML, ML-PY, ML-MK, NA-VA, MA-VA, LP-PQ, PY-PQ, MK-TG, PG-ML and MD-MK. The rest are in the Visayas, namely: CE-ME, ME-LL and II-BC. Perhaps it is not surprising that most are in NCR considering the high mobility of the residents in the region, and the wide media coverage of its component LGUs.

Further, nine of the NCR clusters and two in the Visayas have LGUs that are consistently the leader-innovator in their own group. To illustrate the validity of our classification, consider the Cebu-Mandaue cluster, whose local response appear to be within 31 days of each other 61

percent of the time. Of the two, Cebu is the leader and innovator. Why this may be so, we look at the underlying electoral incentives of their mayors. Mayor Edgar Labella of Cebu and Mayor Jonas Cortes of Mandaue are both on their first term and therefore both are eligible for re-election. Unlike Mayor Labella, however, Mayor Cortes has been mayor before for three consecutive terms (2007-2016), besides being a member of a local political dynasty. In the 2019 elections, he had a 26.3-percent vote margin over his closest competitor, while then candidate Edgar Labella only narrowly defeated his rival (3.7% vote margin). Facing a stiffer political competition relative to Mayor Cortes, Mayor Labella thus has to work harder to convince his constituents. That Cebu dominates Mandaue in both primacy and distinctiveness of response to the pandemic is certainly difficult, and requires consistent work for the city government leader.

Another interesting cluster is Iloilo-Bacolod. Both are highly urbanized cities with comparable trends in COVID-19 cases and poverty incidence. Both Jerry Treñas of Iloilo and Evelio Leonardia of Bacolod are eligible to run for another term, and also previously served as mayor of their cities for three full terms. Their respective vote margins during the 2019 elections are 31.6% and 63.6%, which, along with Iloilo's higher revenues per capita, could help explain why Iloilo is the leader-innovator.

Among the clusters without a consistent leader-innovator LGU, Manila-Pasig is particularly notable. Both their mayors are first-termers and won with at least 20-percent vote margin during the 2019 elections. While neither one is a member of a political clan in his city, both won over rivals who are. Both are very popular and are often compared in both social media and news media. This makes them "peers" although their cities' borders are not contiguous. Despite Pasig having twice as much revenues per capita as Manila, Manila is able to counter Pasig leadership by being the more innovative in their COVID-19 programs and activities.

6.3 Low temporal clustering and YC assumption not satisfied (B)

Here we present the clusters that fail the YC assumptions tend to have low temporal clustering in their local responses. These are the LP-MN-PQ and IL-CD clusters. The first cluster is particularly noteworthy.

On the face of it, any cluster that includes Muntinlupa will not fulfill the YC assumption, since its current mayor, Jaime Fresnedi, is on his final term and not a political clan member. The expectation then is that a cluster with Muntinlupa will have a low temporal clustering score and that Muntinlupa would be more of a "mimicker" or less innovative than others in the cluster. Although the temporal clustering is below 50% in the LP-MN-PQ group, Muntinlupa is the cluster's leader-innovator, which seems inconsistent with the predictions of YC model.

Possible clues to this puzzle are revealed once we dig deeper into Mayor Fresnedi's political career. He was Muntinlupa's mayor from 1998 to 2007. Constitutionally barred from running for his fourth consecutive term during the 2007 elections, he had his wife, Loreta Fresnedi, run for the same position, but who lost to then vice mayor. In the following election, Jaime Fresnedi vied for the mayoralty post and lost to the same. It was not until his second subsequent attempt did he succeed, by a slim 4.3% vote margin. Given his experience and if his past ploys are any indications of his future plans, Mayor Fresnedi, is perhaps leaving a "legacy" in order to pave the way for his anointed successor (possibly, another family member) or for his own comeback.[15]

Ostensibly, Fresnedi's pattern of local responses may be consistent with that of a benevolent leader who simply desires to leave a legacy to his bailiwick. However, his apparent deviation from the prediction of YC may also be explained by a desire to get elected to another position, which may be decided upon by the same set of electorates. Therefore, focusing on eligibility for reelection and membership to a political clan might gloss over other motives that drive local chief executive to perform.

6.4 High temporal clustering and YC assumption not satisfied (C)

There are two clusters – MN-LP ad MN-PQ – whose local responses appear to be highly in-synced, and yet do met the relevant YC assumption. Note both clusters may be considered as sub-clusters of the LP-MN-PQ group analyzed above. This only shows, however, three or more LGUs that share a border may not all be involved in one-upmanship, and that only some pairs within the same group are.

Interestingly, Muntinlupa is both the leader and innovator in the MN-LP cluster, but only the innovator in the MN-PQ cluster. In the latter, Parañaque and Muntinlupa tied for the leadership; which at least half the time they implemented similar responses within approximately the same period. The dominance of Muntinlupa in these two cluster also follow from the electoral incentives of its incumbent mayor as explained above.

6.5 Low temporal clustering and YC assumption satisfied (D)

This is the second biggest group with seven LGU clusters (25% of the total). Each cluster satisfy the key YC assumption, and yet their local responses appear out of synced (i.e., $T_i < 50\%$).

[15] While this shows the limitations of term limit and membership in political clans as indicators of electoral incentives, future plans or intentions to comeback however are only revealed ex-post. A modest politician who feigns disinterest unless he hears the people's clamor for him to run may be misclassified as one without electoral incentive if based on his expressed intent ex ante. Note that had Loreta Fresnedi won, then both she and Jaime would have been tagged here as members of local political clan.

Five of them each has an LGU leader-innovator, namely CE-ME-LL, QC-MR, ML-NA, MR-PG, and MA-CA. Two have distinct LGU leader and LGU innovator, namely PC-ML-QC and CB-GP.

Note that CE-ME-LL, QC-MR, ML-NA and MR-PG each score 45% or higher in the temporal clustering indicator. Hence, their scores are not too far below the 50-percent threshold. Though relatively lower, PG-ML-QC and MA-CA score above 35%. But, at 9%, the score of CB-GP is clearly an outlier.

In the QC-MR cluster or MR-PG cluster, Marikina is neither the leader nor the innovator, despite having gone viral in social media at the onset of the pandemic. A possible explanation is Marikina has devoted much of its time and fiscal resources in establishing a molecular testing laboratory, which is understandable given its relatively high number of cases early in the pandemic. Also faced with increasing number of cases, Quezon and Pasig however implemented more varied responses.

The cluster comprising Gapan and Cabanatuan is also worth expounding. Both component cities of Nueva Ecija province, they had similar COVID trends and attack rate. Besides being richer (in fiscal revenues per capita), Cabanatuan has thrice the population of Gapan. Mayor Myca Vergara of Cabanatuan is on her first term, while Mayor Emerson Pascual of Gapan is on his second. Besides being a scion of local political dynasty, Mayor Vergara won by 69-percent vote margin in the last elections. Mayor Pascual ran unopposed. Being secured in their positions, they should feel less compelled to engage in one-upmanship against each other. Yet, Cabanatuan implemented 71% of all the unique local responses, and led in the implementation half of the time. Instead of simply mimicking Mayor Pascual's moves, Mayor Vergara has manifested her innovativeness.

7. Discussion and conclusions

This paper accounts for the spatial and temporal clustering of local responses to the COVID-19 pandemic among 25 Philippine cities, grouped into 28 clusters, during the period March 2020-March 2021. Using the YC model, we examined the patterns of the types and timing of responses of neighboring localities for their consistency with the hypothesis that their mayors engage in one-upmanship to demonstrate their competencies to their constituents. Such a demonstration is credible since the COVID-19 crisis is an exogenous shock that affects all places, and informative since news or information about the pandemic as well as the government responses to it saturate both mass media and social media, such as the Facebook and Twitter accounts of the mayors or their local governments. Thus, by outdoing their peers, mayors can improve their popularity and, thereby, secure their re-election or the bid of their anointed

successors (possibly, relatives). Conversely, were the prospects for a fresh term nil, the incumbent has less incentive to outdo other mayors.

Of the 28 LGU clusters, we found in 19 of them (67.86%) the types and timing of local responses to be consistent with the YC model. The seventeen with high temporal clustering of responses have mayors eligible for another term, while the two with low temporal clustering have mayors who face term limits. Of the nine remaining clusters, five have mayors who, despite their eligibility for another term, engage less frequently in one-upmanship. In three of them, however, their local responses appear to be in-synced between 40- and 50-percent of the time. In two clusters that show pattern (of high temporal clustering) inconsistent with the YC model include an LGU whose current mayor faces a term limit but whose past behavior suggest a future attempt to comeback.

Apparently, one-upmanship in some clusters is dominated by one LGU, which frequently implement responses ahead of others or unlike those of others. In other clusters, the leader is different from the innovator. The leader-innovators appear to be those facing severe political pressure, as evidenced by their low vote margin or number of rivals in the 2019 local elections.

While our findings are broadly consistent with the predictions of the YC model, they do not directly confirm nor refute the model. Our data only permit gross correlations between the patterns of local responses and the electoral incentives of the incumbent mayors within each cluster. While we attempted to control for other factors that may drive the correlations, we are unable to tease out the marginal contributions of electoral incentives to the overall correlation. For that, more sophisticated statistical or econometric tests would be appropriate. Our results then should be taken as prima facie evidence of the YC model's usefulness for comprehending local responses to the COVID-19 pandemic in the Philippines. The ultimate test of the YC model, of course, is how well it will predict the outcomes of the upcoming elections in 2022. This is a promising topic for future study. As Appendix 2 shows, already the more "competitive" of the incumbent mayors in Metro Manila – Francisco Domogoso, Vico Sotto, and, of late, Joy Belmonte – have seen their popularity rise during the pandemic.

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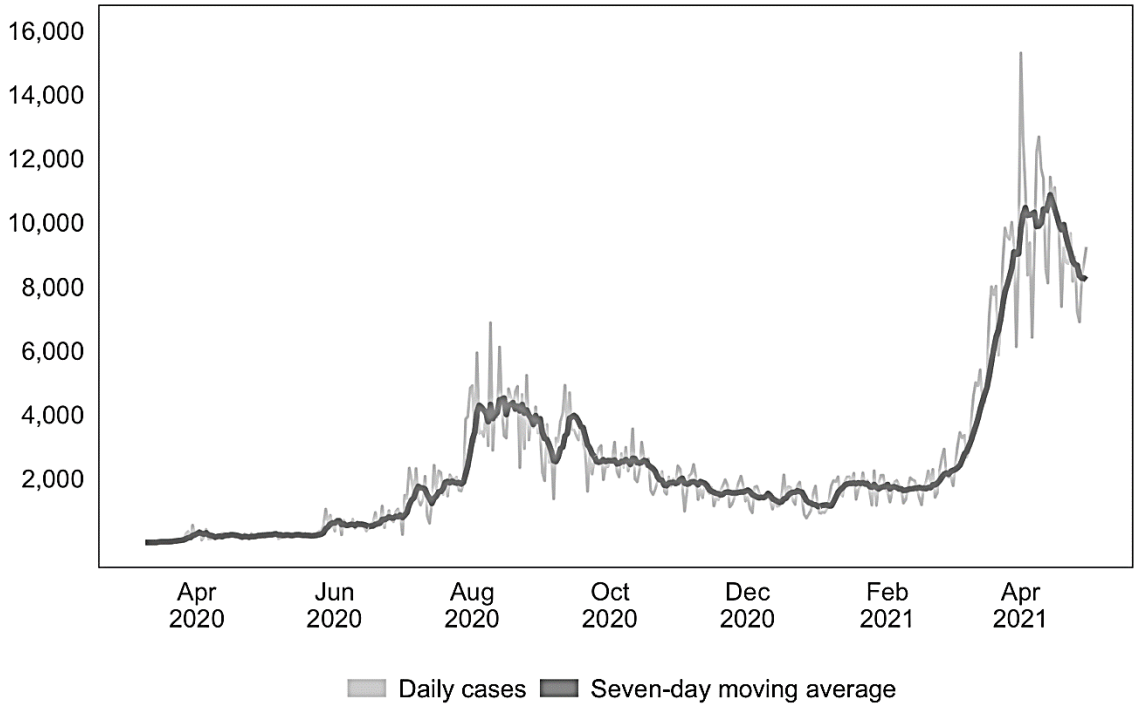
Figure 1. Daily cases and seven-day moving average of daily cases Philippines, 1 March 2020 to 1 May 2021



Source of raw data: Daily cases from the Department of Health Data Drop as of 1 May 2021. Authors calculated the seven-day moving average.

Figure 2. Seven-day moving average of daily active COVID-19 cases in select cities in NCR 1 March 2020 to 31 March 2021

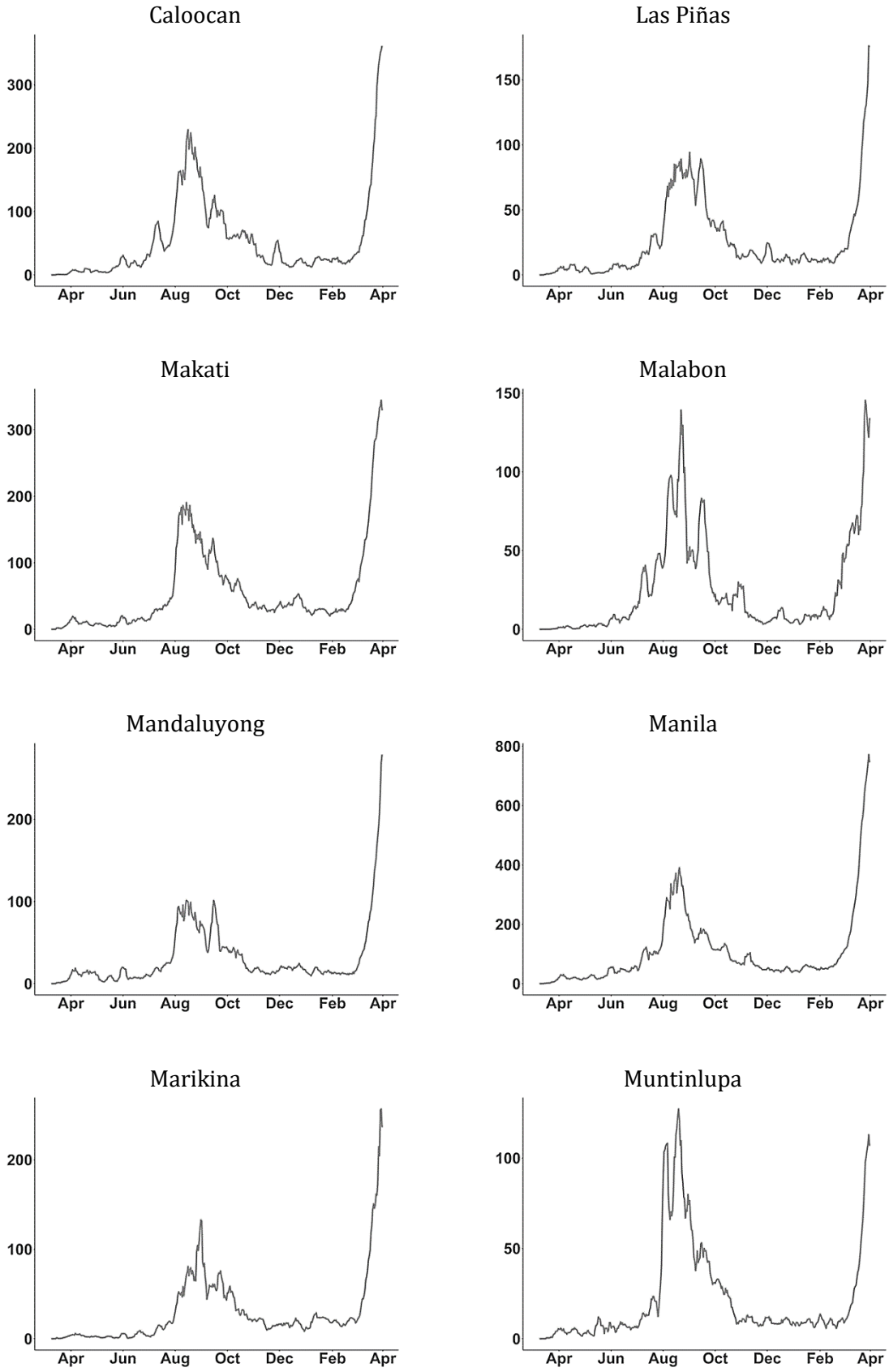


Figure 2. Seven-day moving average of daily active COVID-19 cases in select cities in NCR (cont.)
1 March 2020 to 31 March 2021

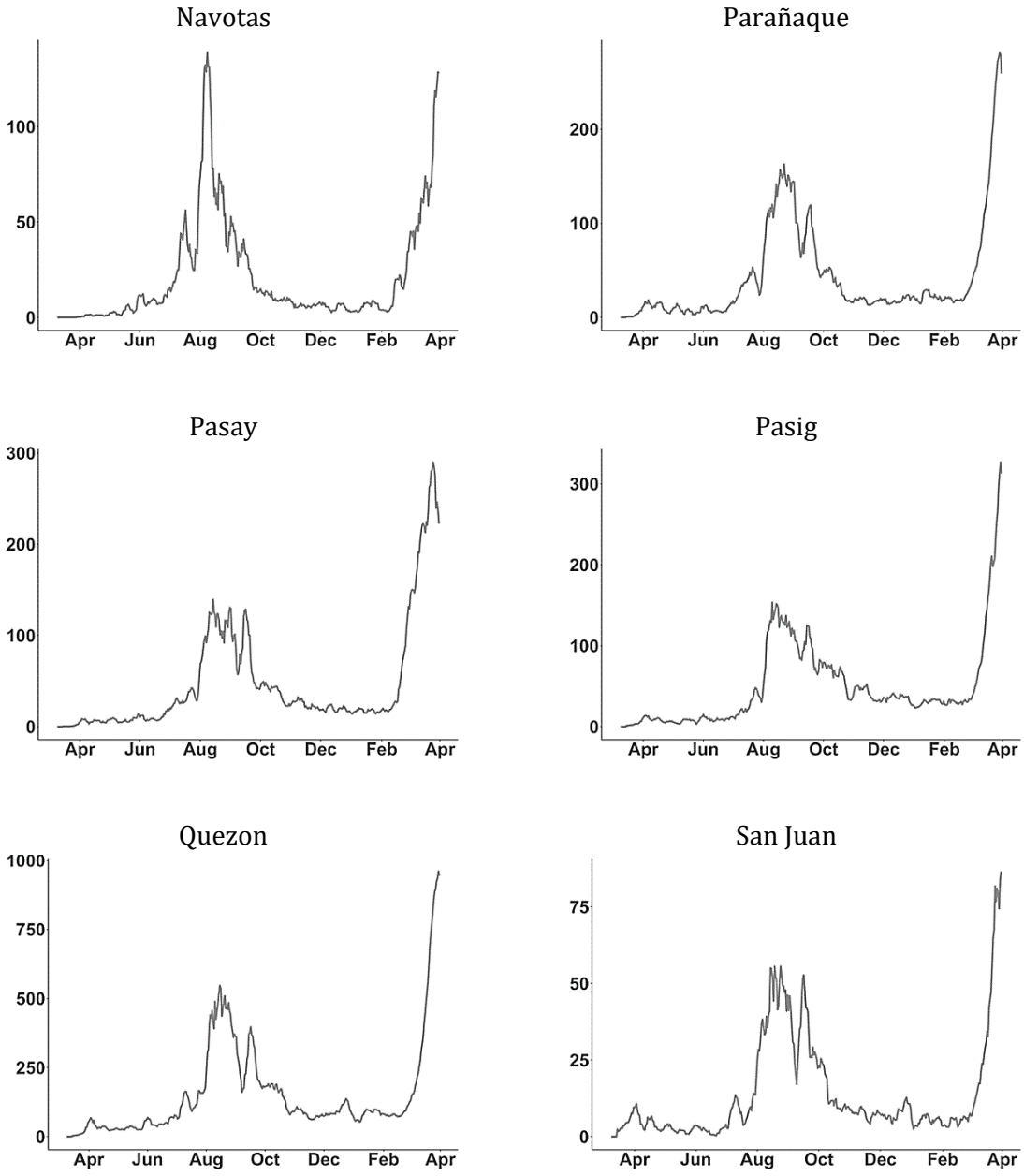
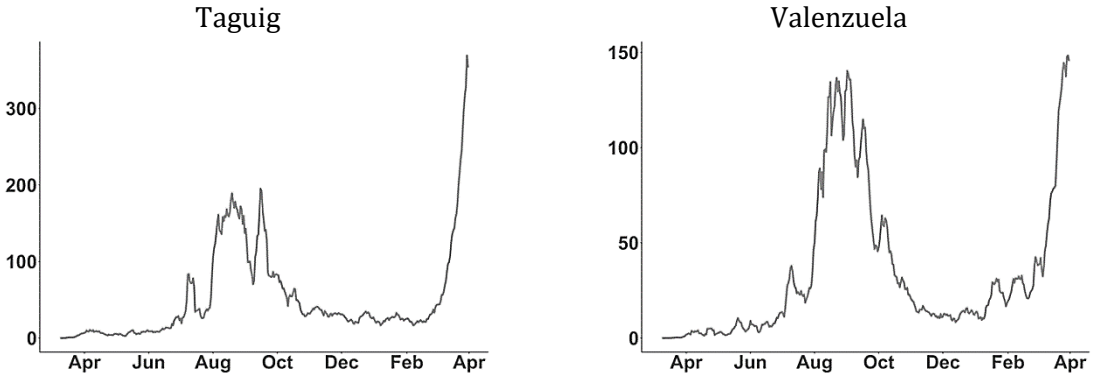


Figure 2. Seven-day moving average of daily active COVID-19 cases in select cities in NCR (cont.)
1 March 2020 to 31 March 2021



Source of raw data: DOH data drop as of 31 March 2021. Authors' computations.

Figure 3. Seven-day moving average of daily active COVID 19 cases in select cities outside NCR
1 March 2020 to 31 March 2021

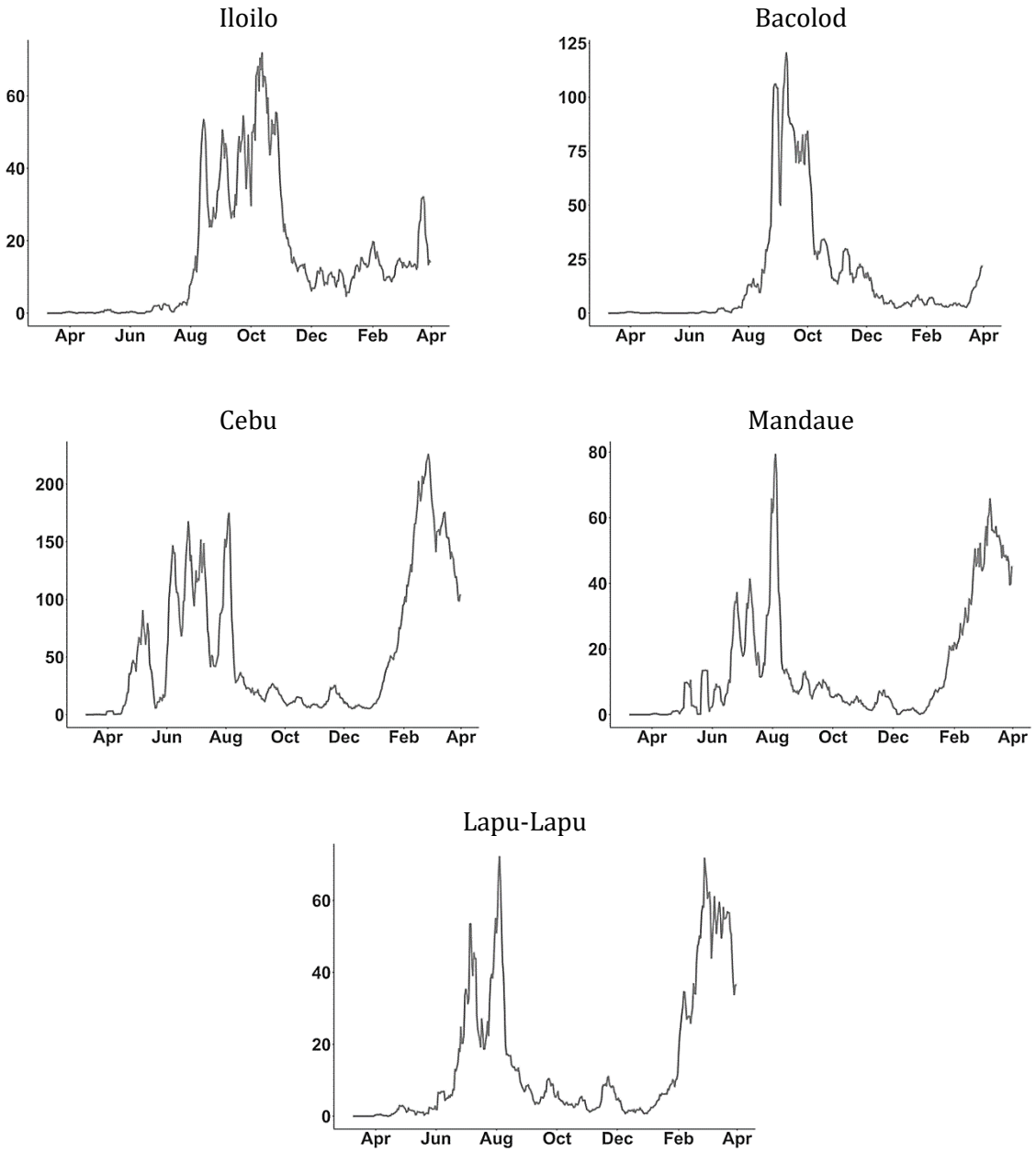
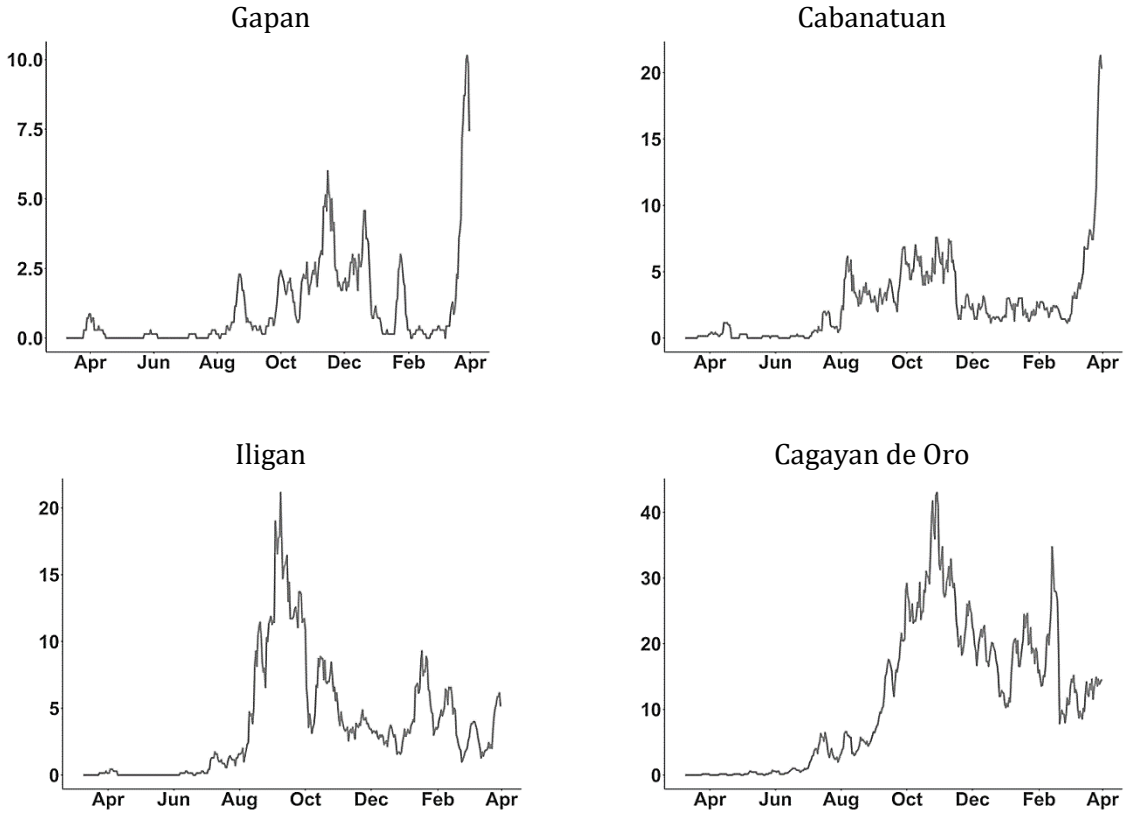
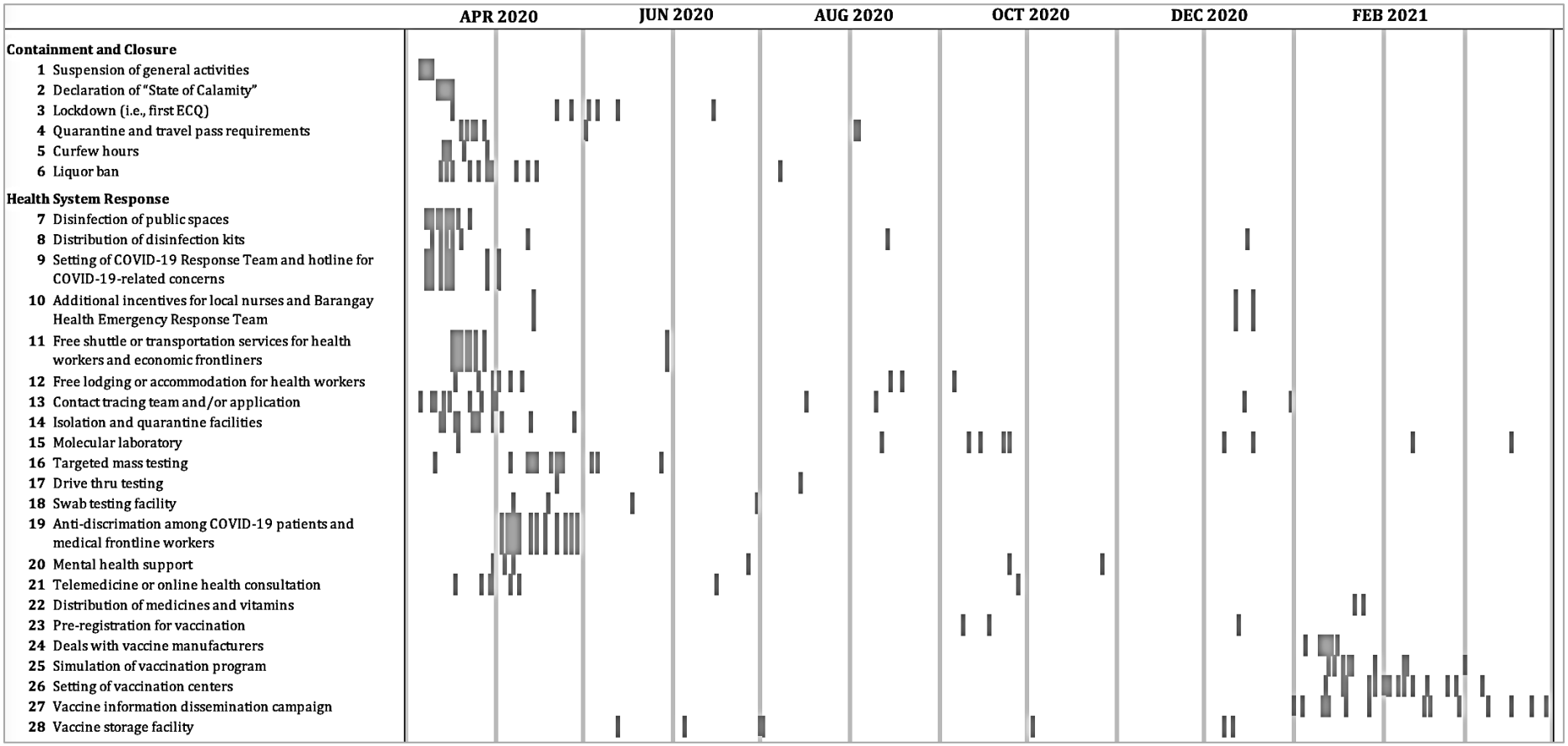


Figure 3. Seven-day moving average of daily active COVID 19 cases in select cities outside NCR (cont'd.)
1 March 2020 to 31 March 2021



Source of raw data: DOH data drop as of 31 March 2021. Authors' computations.

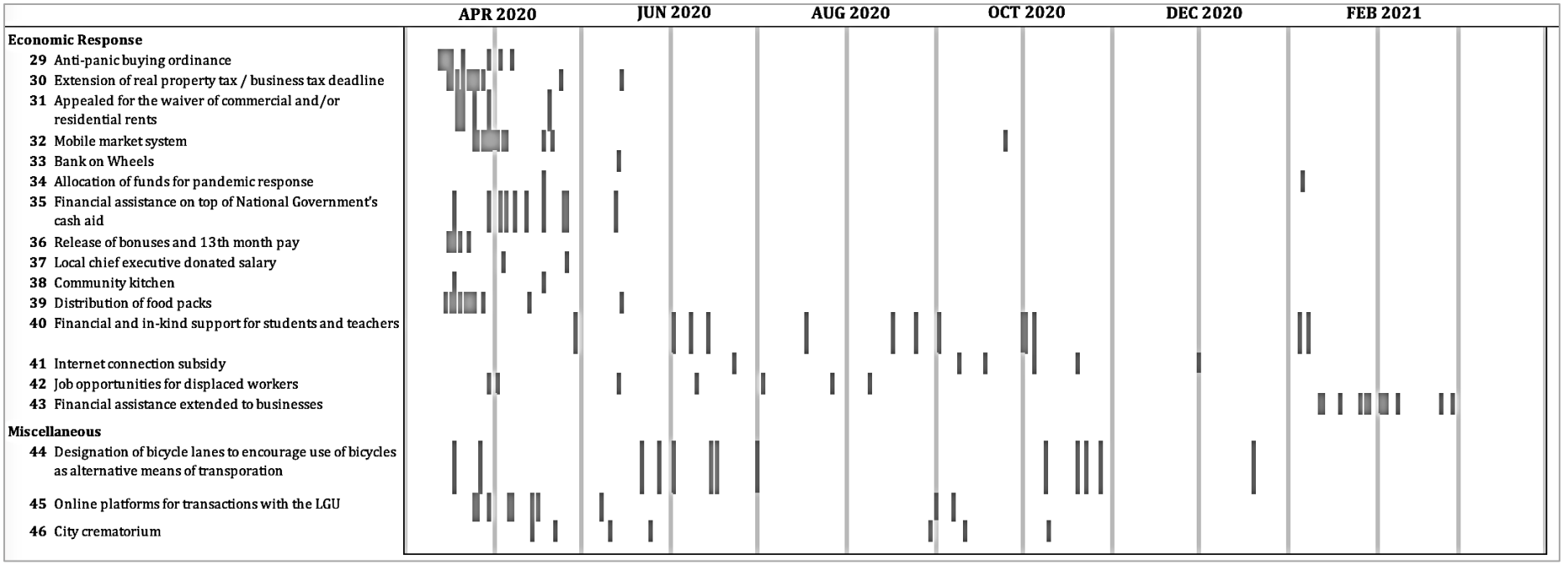
Figure 4. Heat map of selected local responses of cities in NCR [a]
1 March 2020 to 31 March 2021



[a] Cities in NCR include Caloocan, Las Piñas, Makati, Malabon, Mandaluyong, Manila, Marikina, Muntinlupa, Navotas, Paranaque, Pasay, Pasig, Quezon City, San Juan, Taguig, and Valenzuela.

Source: Facebook pages of local government's public information office (PIO) or own Facebook page of the mayor. Authors classified local responses according to 46 types.

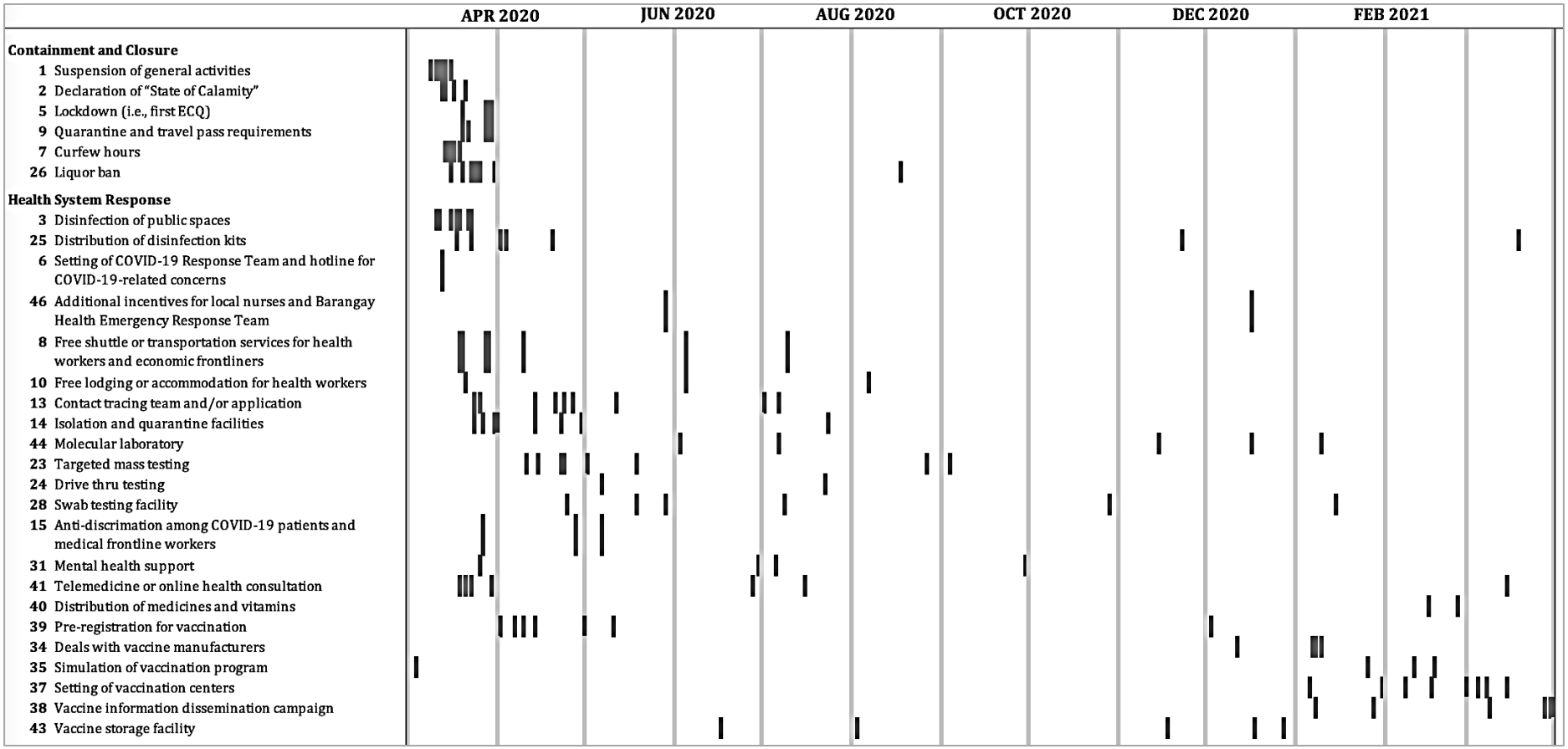
Figure 4. Heat map of selected local responses of cities in NCR [a] (cont'd.)
1 March 2020 to 31 March 2021



[a] Cities in NCR include Caloocan, Las Piñas, Makati, Malabon, Mandaluyong, Manila, Marikina, Muntinlupa, Navotas, Paranaque, Pasay, Pasig, Quezon City, San Juan, Taguig, and Valenzuela.

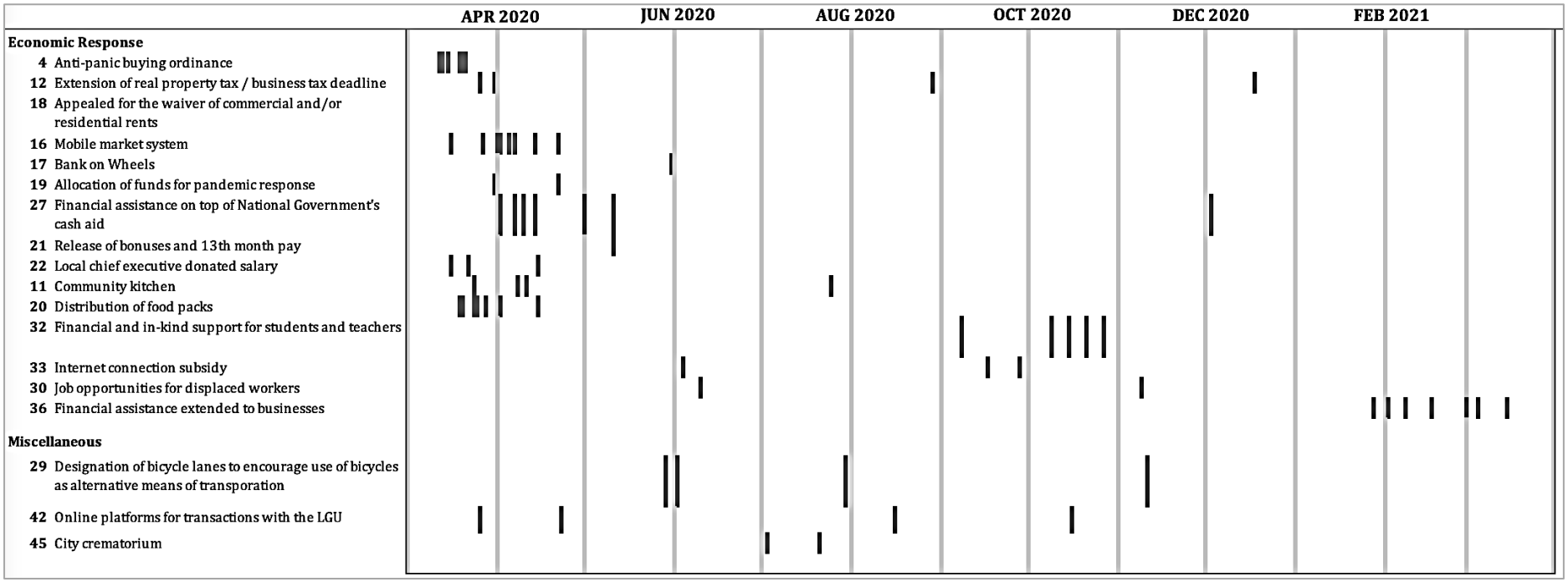
Source: Facebook pages of local government's public information office (PIO) or own Facebook page of the mayor. Authors classified local responses according to 46 types.

Figure 5. Heat map of selected local responses of selected cities outside NCR [a]
1 March 2020 to 31 March 2021



[a] Selected cities outside NCR include Iloilo City, Bacolod City, Iligan City, Cagayan de Oro City, Cabanatuan City, Gapan City, Cebu City, Mandaue City, and Lapu-Lapu City.
Source: Facebook pages of local government's public information office (PIO) or own Facebook page of the mayor. Authors classified local responses according to 46 types.

Figure 5. Heat map of selected local responses of selected cities outside NCR [a] (cont'd.)
1 March 2020 to 31 March 2021



[a] Selected cities outside NCR include Iloilo City, Bacolod City, Iligan City, Cagayan de Oro City, Cabanatuan City, Gapan City, Cebu City, Mandaue City, and Lapu-Lapu City.
Source: Facebook pages of local government's public information office (PIO) or own Facebook page of the mayor. Authors classified local responses according to 46 types.

Figure 6. Framework of one-upmanship in local responses

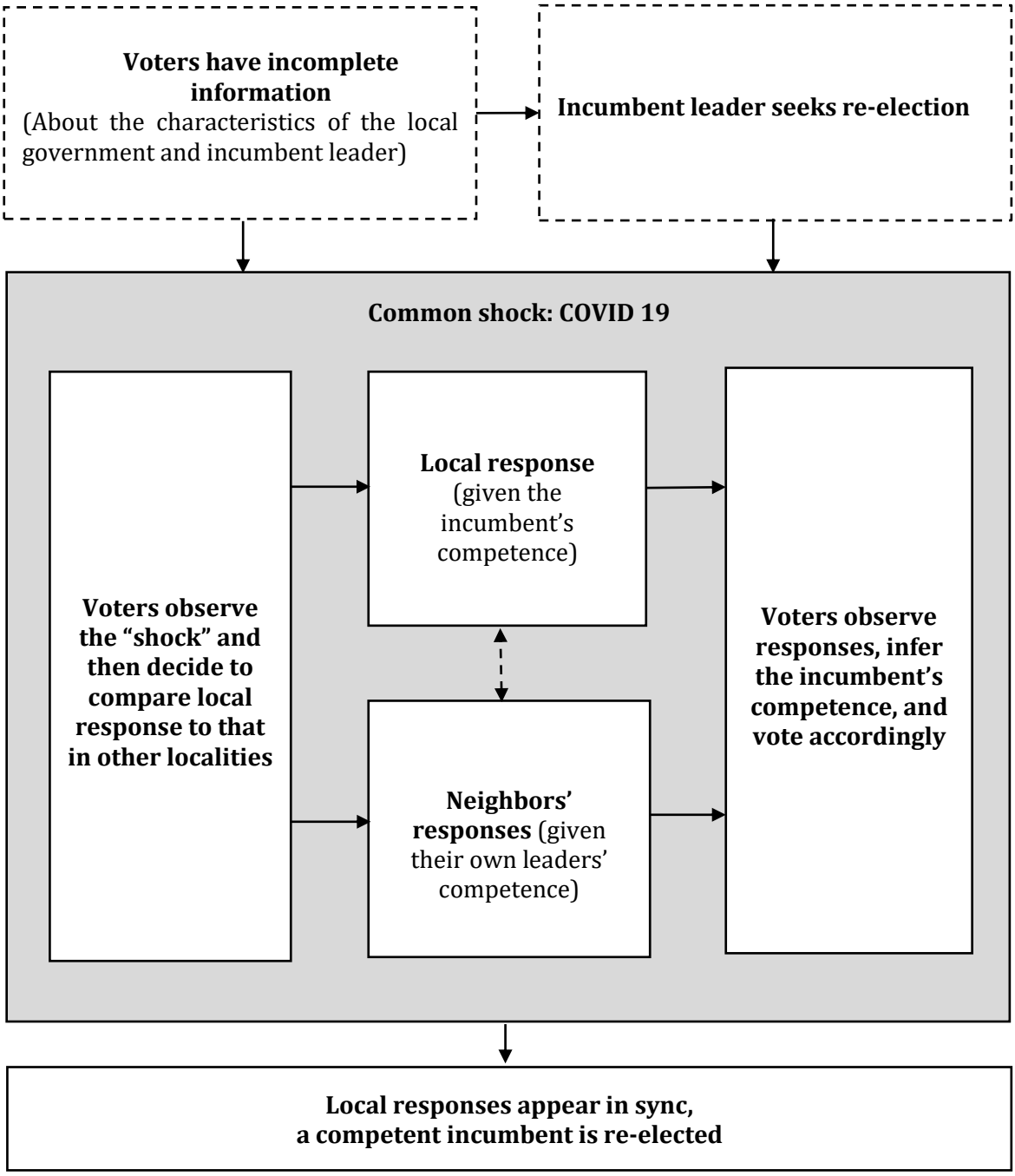


Figure 7. COVID-19 Twitter trends that mention LGUs and its local chief executives
1 March 2020 to 1 September 2020

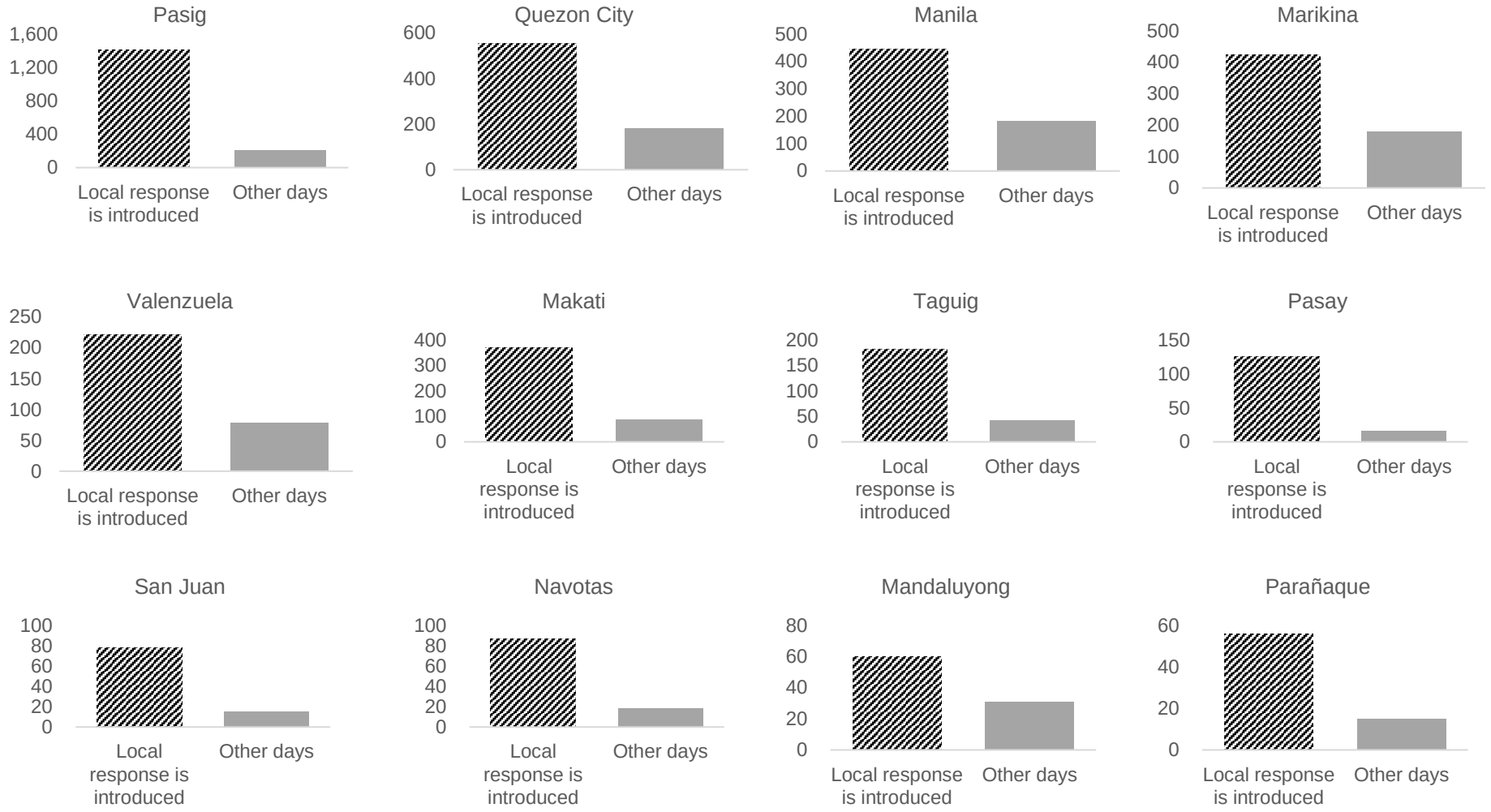
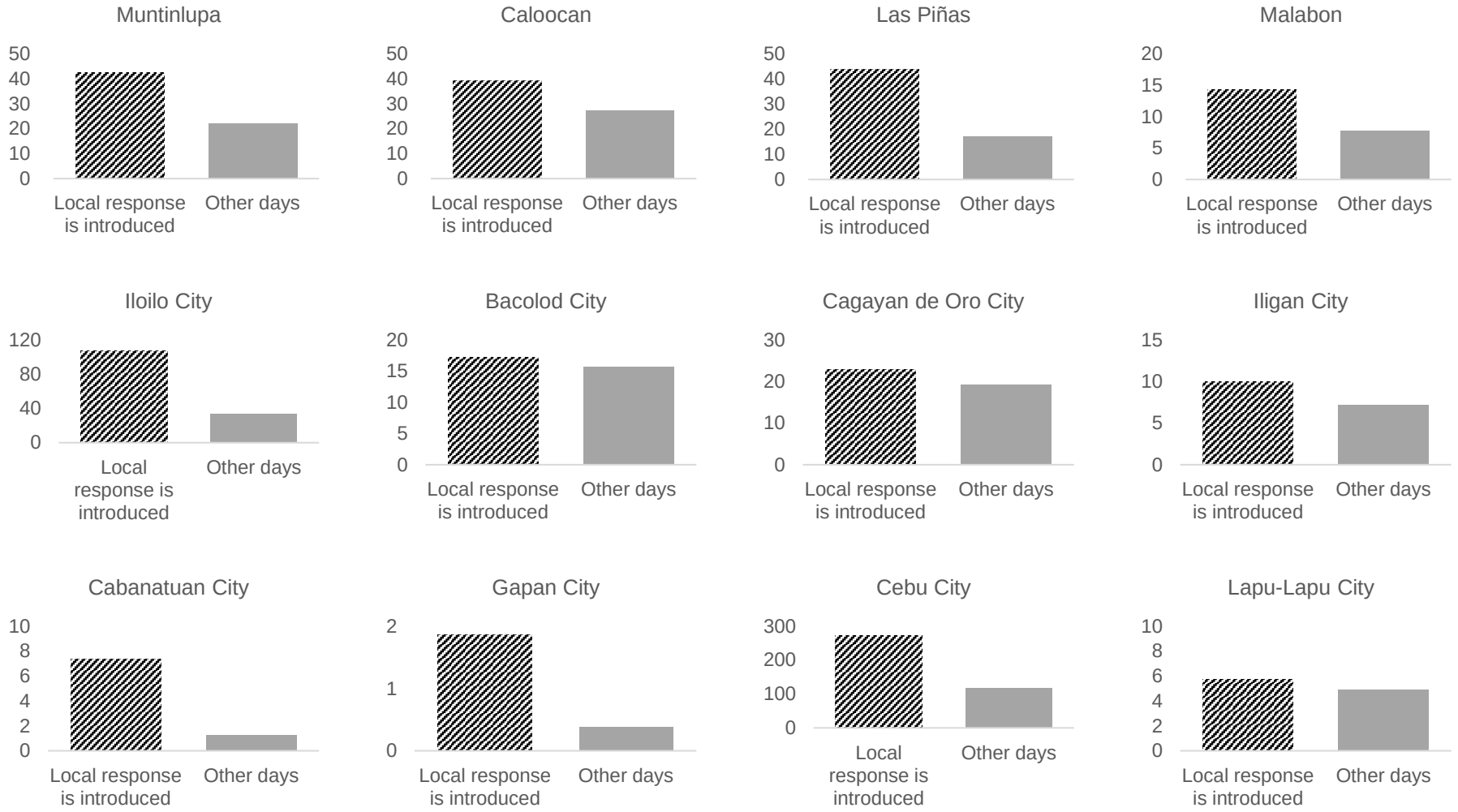


Figure 7. COVID-19 Twitter trends that mention LGUs and its local chief executives (cont'd.)
1 March 2020 to 1 September 2020



Note: COVID-19 Twitter Trends for Mandaue City were not collected due to technical issues
Source: GeoCov19 multi-lingual Twitter dataset developed by Qazi, Imran, and Ofli (2020).

Figure 8. Classifying LGU clusters by consistency of one-upmanship in responses with yardstick competition model

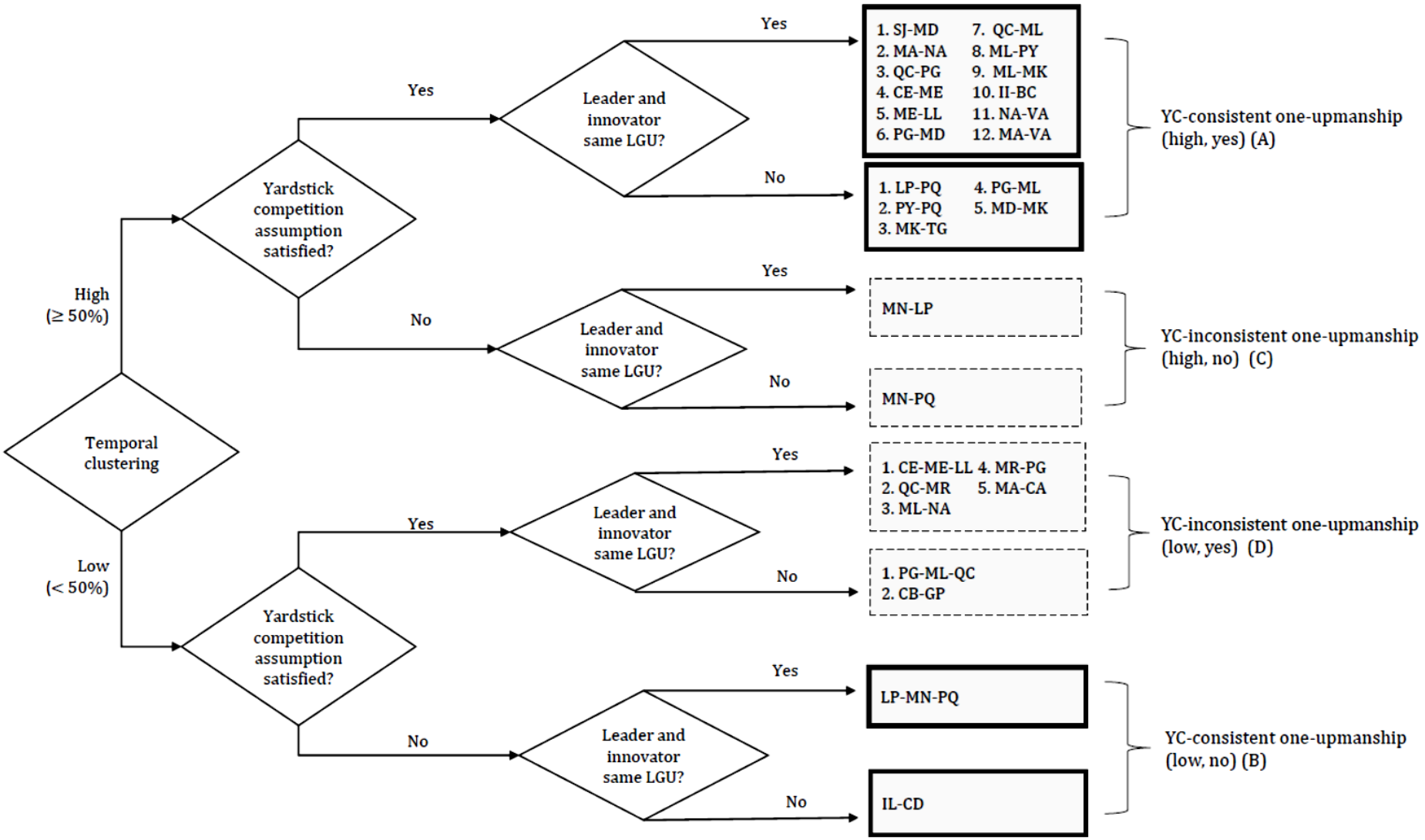


Table 1. Correlation matrix of COVID-19 cases in NCR*

	Caloocan	Valenzuela	Quezon	Malabon	Navotas	Manila	San Juan	Mandaluyong	Pasig	Marikina	Makati	Pasay	Taguig	Parañaque	Las Piñas	Muntinlupa
Caloocan	1.00	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Valenzuela	0.83	1.00	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Quezon City	0.92	0.82	1.00	–	–	–	–	–	–	–	–	–	–	–	–	–
Malabon	0.75	0.72	0.72	1.00	–	–	–	–	–	–	–	–	–	–	–	–
Navotas	0.71	0.64	0.71	0.68	1.00	–	–	–	–	–	–	–	–	–	–	–
Manila	0.92	0.81	0.95	0.72	0.71	1.00	–	–	–	–	–	–	–	–	–	–
San Juan	0.82	0.71	0.82	0.67	0.59	0.77	1.00	–	–	–	–	–	–	–	–	–
Mandaluyong	0.86	0.75	0.91	0.66	0.67	0.89	0.80	1.00	–	–	–	–	–	–	–	–
Pasig	0.86	0.81	0.92	0.67	0.64	0.91	0.75	0.86	1.00	–	–	–	–	–	–	–
Marikina	0.75	0.74	0.78	0.52	0.51	0.79	0.58	0.76	0.81	1.00	–	–	–	–	–	–
Makati	0.87	0.82	0.92	0.72	0.72	0.93	0.76	0.86	0.90	0.77	1.00	–	–	–	–	–
Pasay	0.76	0.73	0.82	0.69	0.64	0.82	0.69	0.74	0.80	0.70	0.84	1.00	–	–	–	–
Taguig	0.84	0.75	0.88	0.68	0.67	0.85	0.79	0.88	0.83	0.70	0.86	0.76	1.00	–	–	–
Parañaque	0.89	0.85	0.91	0.74	0.71	0.90	0.77	0.86	0.87	0.79	0.91	0.84	0.86	1.00	–	–
Las Piñas	0.84	0.79	0.86	0.67	0.67	0.85	0.77	0.88	0.80	0.70	0.85	0.72	0.88	0.88	1.00	–
Muntinlupa	0.82	0.78	0.78	0.66	0.68	0.76	0.71	0.73	0.72	0.61	0.78	0.64	0.79	0.82	0.78	1.00

*Excluding Pateros. Total cases as of 31 March 2021.
Source of raw data: DOH. Authors' computation.

Table 2. Correlation matrix of COVID-19 cases in selected cities outside the NCR

	Iloilo	Bacolod	Iligan	Cagayan de Oro	Cabanatuan	Gapan	Cebu	Mandaue	Lapu Lapu
Iloilo	1.00	–	–	–	–	–	–	–	–
Bacolod	0.38	1.00	–	–	–	–	–	–	–
Iligan	–	–	1.00	–	–	–	–	–	–
Cagayan de Oro	–	–	0.35	1.00	–	–	–	–	–
Cabanatuan	–	–	–	–	1.00	–	–	–	–
Gapan	–	–	–	–	0.41	1.00	–	–	–
Cebu	–	–	–	–	–	–	1.00	–	–
Mandaue	–	–	–	–	–	–	0.77	1.00	–
Lapu-lapu	–	–	–	–	–	–	0.75	0.83	1.00

Total cases as of 31 March 2021.
Source of raw data: DOH. Authors' computation.

Table 3. Key profiles of the selected cities

City	Code	Incumbent Mayor	COVID-19 Statistics [a]		Profile of the incumbent mayor					
			Cases	Cases per 100,000	Sex	Age	Term as mayor [b]	Political dynasty	Vote margin[c]	Number of competi-tors[c]
Caloocan	CA	Malapitan, Oscar	21,977	1,325	M	65	3rd	Y	95.7%	6
Las Pinas	LP	Aguilar, Imelda	10,465	1,684	F	74	2nd	Y	81.4%	4
Makati	MK	Binay, Abigail	22,647	3,556	F	45	2nd	Y	26.2%	6
Malabon	MA	Oreta, Antolin	10,139	2,708	M	49	3rd	Y	28.4%	2
Mandaluyong	MD	Abalos, Carmelita	12,764	2,873	F	58	2nd	Y	87.5%	2
Manila	ML	Domagoso, Francisco	43,543	2,308	M	46	1st	N	20.6%	8
Marikina	MR	Teodoro, Marcelino	11,947	2,509	M	50	2nd	N	100.0%	0
Muntinlupa	MN	Fresnedi, Jaime	8,808	1,615	M	70	3rd	N	51.4%	4
Navotas	NA	Tiangco, Tobias	8,631	3,456	M	53	1st	Y	40.6%	2
Paranaque	PQ	Olivarez, Edwin	17,103	2,307	M	57	3rd	Y	52.0%	4
Pasay	PY	Calixto-Rubiano, Imelda	18,911	4,362	F	60	1st	Y	45.0%	5
Pasig	PG	Sotto, Victor	19,782	2,364	M	31	1st	N	26.5%	2
Quezon	QC	Belmonte, Ma. Josefina	62,209	2,019	F	51	1st	Y	11.9%	10
San Juan	SJ	Zamora, Francis	5,658	4,604	M	43	1st	Y	17.1%	2
Taguig	TG	Cayetano, Lino	21,231	2,184	M	43	1st	Y	22.2%	3
Valenzuela	VA	Gatchalian, Rex	13,824	2,103	M	42	3rd	Y	94.3%	3
Iloilo	II	Treñas, Jerry	5,944	1,262	M	65	1st	N	31.9%	7
Bacolod	BC	Leonardia, Evelio	6,276	1,040	M	69	2nd	N	63.6%	3
Iligan	IL	Regencia, Celso	1,461	411	M	60	3rd	N	21.0%	4
Cagayan De Oro	CD	Moreno, Oscar	4,499	609	M	70	3rd	N	27.1%	4
Cabanatuan	CB	Vergara, Myca	1,032	310	F	n.a.	1st	Y	69.0%	4
Gapan	GP	Pascual, Emerson	431	361	M	n.a.	2nd	N	100.0%	0
Cebu	CE	Labella, Edgar	21,979	2,263	M	70	1st	N	3.7%	5
Mandaue	ME	Cortes, Jonas	5,703	1,459	M	54	1st	Y	26.3%	4
Lapu-Lapu	LL	Chan, Junard	5,729	1,234	M	52	1st	Y	12.6%	5

COVID-19 = Coronavirus Disease 2019; LGU = local government unit; IRA = internal revenue allotment, HUC = highly urbanized city; IC = independent city; CC = component city; n.a. = not available

[a] As of 31 March 2021

[b] Order based on the existing consecutive term

[c] Based on 2019 mayoral elections. Vote margin refer to the winning margin of the incumbent mayor over the second highest, as a percentage of total votes.

[d] Based on Philippine Statistical Yearbook Table 1.3

[e] Based on Philippine Standard Georgraphic Code database

[f] Based on projected 1 July 2020 projection of the Philippine Statistics Authority

[g] Based on Official Poverty Statistics of the Philippines full year 2018

[h] Based on Official Poverty Statistics of the Philippines 2015 Small Area Estimates

Table 3. Key profiles of the selected cities (cont'd.)

City	Code	Incumbent Mayor	Fiscal profile					Population profile		
			Income class	Revenues per capita 2019	IRA per capita 2019	Land area (sq. km.)[d]	Number of barangays[e]	Voter turnout[c]	Population[f]	Poverty incidence[g]
Caloocan	CA	Malapitan, Oscar	HUC	2,058.27	1,709.93	55.8	188	444,812	1,659,171	3.1%
Las Pinas	LP	Aguilar, Imelda	HUC	3,481.99	1,944.73	32.7	20	194,707	621,292	1.0%
Makati	MK	Binay, Abigail	HUC	23,482.85	1,861.86	21.6	33	308,103	636,947	0.2%
Malabon	MA	Oreta, Antolin	HUC	2,547.88	2,223.77	15.7	21	156,951	374,431	1.2%
Mandaluyong	MD	Abalos, Carmelita	HUC	10,108.86	1,937.77	9.3	27	137,250	444,211	0.9%
Manila	ML	Domagoso, Francisco	HUC	6,514.74	1,657.86	25.0	897	713,648	1,886,920	1.9%
Marikina	MR	Teodoro, Marcelino	HUC	3,546.30	2,048.64	21.5	16	158,024	476,108	1.5%
Muntinlupa	MN	Fresnedi, Jaime	HUC	7,913.60	1,975.56	39.8	9	217,778	545,540	0.8%
Navotas	NA	Tiangco, Tobias	HUC	3,876.67	2,559.21	8.9	18	112,731	249,774	2.4%
Paranaque	PQ	Olivarez, Edwin	HUC	7,649.09	1,813.74	46.6	16	225,080	741,227	0.5%
Pasay	PY	Calixto-Rubiano, Imelda	HUC	12,789.29	2,107.20	14.0	201	190,007	433,585	1.5%
Pasig	PG	Sotto, Victor	HUC	12,968.70	1,781.18	48.5	30	330,926	836,915	1.8%
Quezon	QC	Belmonte, Ma. Josefina	HUC	6,275.49	1,662.48	171.7	142	866,598	3,080,813	1.5%
San Juan	SJ	Zamora, Francis	HUC	13,922.08	3,506.08	6.0	21	59,873	122,886	0.4%
Taguig	TG	Cayetano, Lino	HUC	10,667.58	1,613.24	45.2	28	288,352	972,071	0.5%
Valenzuela	VA	Gatchalian, Rex	HUC	4,918.58	1,933.77	47.0	33	257,421	657,446	0.5%
Iloilo	II	Treñas, Jerry	HUC, IC	4,750.92	2,148.68	78.3	180	214,279	471,043	3.5%
Bacolod	BC	Leonardia, Evelio	HUC, IC	2,086.69	2,112.54	160.7	61	227,786	603,286	3.3%
Iligan	IL	Regencia, Celso	HUC, IC	1,854.35	4,134.65	813.4	44	129,341	355,564	11.9%
Cagayan De Oro	CD	Moreno, Oscar	HUC, IC	3,112.85	2,260.49	412.8	80	252,017	738,987	6.1%
Cabanatuan	CB	Vergara, Myca	CC	1,778.47	2,870.52	282.8	89	131,414	333,077	10.9% [h]
Gapan	GP	Pascual, Emerson	CC	986.47	4,715.96	164.4	23	43,056	119,348	14.0% [h]
Cebu	CE	Labella, Edgar	HUC, IC	5,471.84	2,045.39	315.0	80	516,989	971,295	5.0%
Mandaue	ME	Cortes, Jonas	HUC, IC	4,487.69	2,138.35	25.2	27	162,632	390,962	4.6%
Lapu-Lapu	LL	Chan, Junard	HUC, IC	4,043.24	2,018.56	58.1	30	158,004	464,375	4.2%

COVID-19 = Coronavirus Disease 2019; LGU = local government unit; IRA = internal revenue allotment, HUC = highly urbanized city; IC = independent city; CC = component city; n.a. = not available

[a] As of 31 March 2021

[b] Order based on the existing consecutive term

[c] Based on 2019 mayoral elections. Vote margin refer to the winning margin of the incumbent mayor over the second highest, as a percentage of total votes.

[d] Based on Philippine Statistical Yearbook Table 1.3

[e] Based on Philippine Standard Georgraphic Code database

[f] Based on projected 1 July 2020 projection of the Philippine Statistics Authority

[g] Based on Official Poverty Statistics of the Philippines full year 2018

[h] Based on Official Poverty Statistics of the Philippines 2015 Small Area Estimates

Table 4. Indicators of cluster responses and yardstick competition assumption

LGU Clusters [a]	Temporal clustering Indicator	Cluster Leader	Leadership Indicator	Cluster Innovator	Innovation Indicator	Yardstick competition assumptions satisfied?	Is one-upmanship consistent with yardstick competition?
SJ-MD	0.70	Tie [b]	0.47	Tie [b]	0.50	Yes	Yes (same leader & innovator)
MA-NA	0.67	Navotas	0.56	Navotas	0.86	Yes	Yes (same leader & innovator)
QC-PG	0.66	Pasig	0.53	Pasig	0.60	Yes	Yes (same leader & innovator)
LP-PQ	0.65	Parañaque	0.53	Las Piñas	0.60	Yes	Yes (different leader & innovator)
PY-PQ	0.63	Paranaque	0.60	Pasay	0.57	Yes	Yes (different leader & innovator)
CE-ME	0.61	Cebu	0.53	Cebu	0.71	Yes	Yes (same leader & innovator)
ME-LL	0.58	Mandaue	0.53	Mandaue	0.70	Yes	Yes (same leader & innovator)
PG-MD	0.57	Pasig	0.65	Pasig	0.70	Yes	Yes (same leader & innovator)
QC-ML	0.55	Manila	0.61	Manila	0.75	Yes	Yes (same leader & innovator)
ML-PY	0.55	Manila	0.61	Manila	0.83	Yes	Yes (same leader & innovator)
MK-TG	0.53	Taguig	0.53	Makati	0.60	Yes	Yes (different leader & innovator)
ML-MK	0.53	Manila	0.56	Manila	0.67	Yes	Yes (same leader & innovator)
II-BC	0.53	Iloilo	0.67	Iloilo	0.63	Yes	Yes (same leader & innovator)
PG-ML	0.50	Pasig	0.82	Manila	0.67	Yes	Yes (different leader & innovator)
NA-VA	0.50	Valenzuela	0.79	Valenzuela	0.63	Yes	Yes (same leader & innovator)
MD-MK	0.50	Mandaluyong	0.47	Makati	0.75	Yes	Yes (different leader & innovator)
MA-VA	0.50	Valenzuela	0.62	Valenzuela	0.89	Yes	Yes (same leader & innovator)
CE-ME-LL	0.48	Cebu	0.50	Cebu	0.50	Yes	No (same leader & innovator)
QC-MR	0.46	Quezon	0.46	Quezon	0.80	Yes	No (same leader & innovator)
ML-NA	0.45	Manila	0.73	Manila	0.82	Yes	No (same leader & innovator)
MR-PG	0.45	Pasig	0.62	Pasig	0.82	Yes	No (same leader & innovator)
PG-ML-QC	0.38	Pasig	0.54	Manila	0.83	Yes	No (different leader & innovator)
MA-CA	0.36	Caloocan	0.67	Caloocan	0.70	Yes	No (same leader & innovator)
CB-GP	0.09	Gapan	0.50	Cabanatuan	0.71	Yes	No (different leader-innovator)
MN-PQ	0.54	Tie [b]	0.50	Muntinlupa	0.86	No	No (different leader & innovator)
MN-LP	0.54	Muntinlupa	0.67	Muntinlupa	0.70	No	No (same leader & innovator)
LP-MN-PQ	0.43	Muntinlupa	0.50	Muntinlupa	0.71	No	Yes (same leader & innovator)
IL-CD	0.41	Iligan	0.69	Cagayan De Oro	0.64	No	Yes (different leader & innovator)

[a] Refer to Table 3 for codes assigned to each LGU.

[b] Tie = LGUs within the cluster exhibit equal leadership or innovation indices, as applicable.

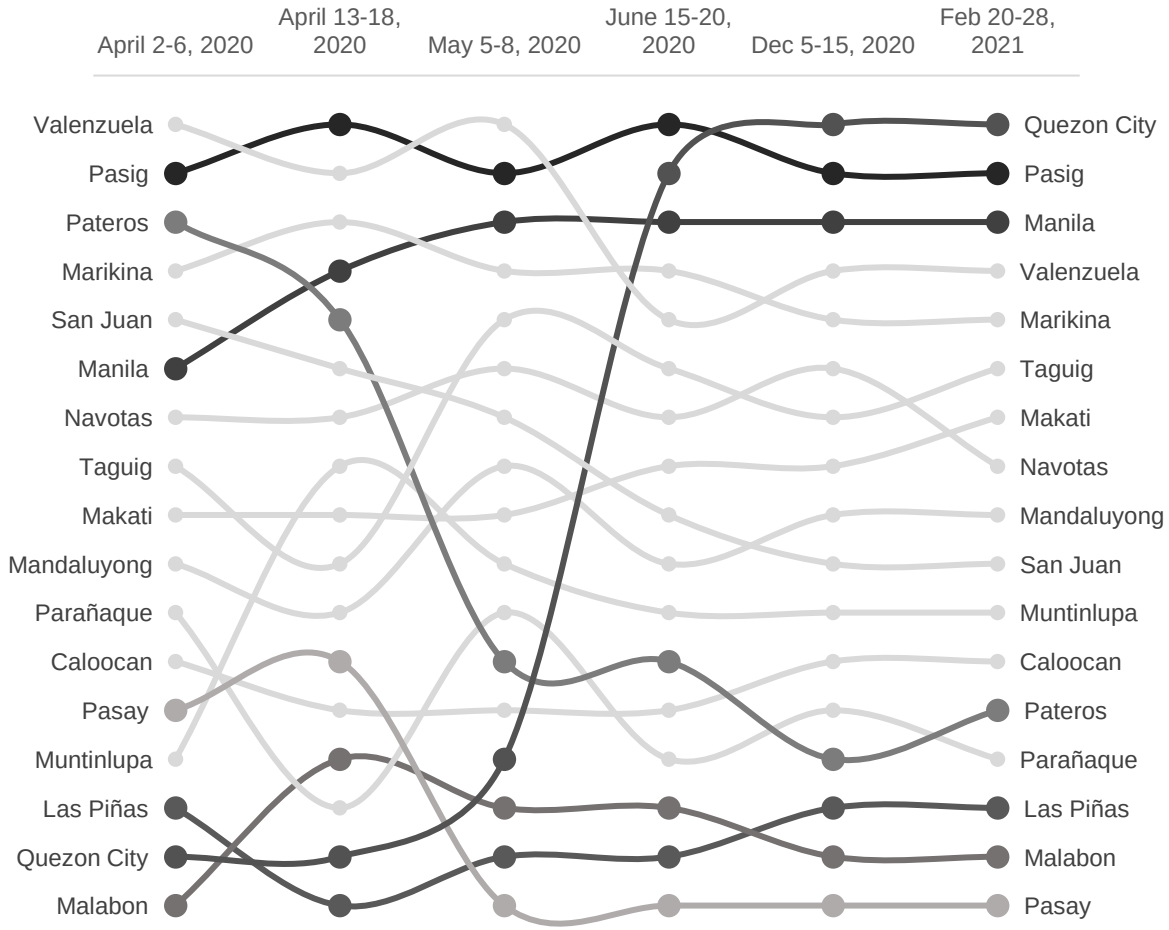
Appendix 1. Data sources of local responses

LGU	LGU Facebook (FB) Page or Public Information Office FB Page		Followers [a]	Incumbent Mayor's FB Page		Followers [a]
Caloocan	Caloocan City	@CaloocanCity	17,969	Mayor Oscar "OCA" Malapitan	@MayorOscarocaMalapitan	687,329
Las Pinas	City of Las Piñas	@cityoflaspinasofficial	366,264	n.a.	n.a.	n.a.
Makati	My Makati	@MyMakatiVerified	463,446	n.a.	n.a.	n.a.
Malabon	100% Pusong Malabon	@OfficialMalabon	131,650	Lenlen Oreta	@LenLenOreta	232,343
Mandaluyong	Mandaluyong City Public Information Office	@MandaluyongPIO	121,698	Mayor Menchie Abalos - Mandaluyong City	@MenchieAbalosFanPage	11,640
Manila	Manila Public Information Office	@ManilaPIO	697,593	Isko Moreno Domagoso	@iskomorenodomagoso	4,921,964
Marikina	Marikina PIO	@MarikinaPIO	360,883			
Muntinlupa	City Government of Muntinlupa - OFFICIAL	@officialMuntinlupacity	333,523	Jimmy Fresnedi	@TatayJimmyFresnedi	138,604
Navotas	Navoteño AKO!	@navotenoako	173,990	Toby Tiangco	@TiangcoToby	150,548
Paranaque	Parañaque City - Public Information Office	@pioparanaqueofficial	66,730	Mayor Edwin Olivarez	@mayoredwinolivarezofficial	313,917
Pasay	Pasay City Public Information Office	@lgupasaypio	176,085	Mayor Emi Calixto-Rubiano	@officeofMayorEmi	61,528
Pasig	Pasig City Public Information Office	@PasigPIO	375,330	Vico Sotto	@VicoSotto	1,614,920
Quezon City	Quezon City Government	@QCGov	610,927	Mayor Joy Belmonte	@MayorJoyBelmonte	389,562
San Juan	San Juan City, Philippines	@CityofSanJuanNCRPhilippines	82,929	Mayor Francis Zamora	@MayorFrancisZamora	175,194

LGU	LGU Facebook (FB) Page or Public Information Office FB Page		Followers [a]	Incumbent Mayor's FB Page		Followers [a]
Taguig	I Love Taguig	@taguigcity	642,260	Lino Cayetano	@DirekLinoCayetano	83,184
Valenzuela	Valenzuela City	@ValenzuelaCityGov	671,006	REX Gatchalian	@REXGatchalianValenzuelaCity	563,959
Iloilo City	Iloilo City Government	@iloilocitygov	185,525	Jerry Treñas	@JerryTrenasOfficial	248,415
Bacolod City	Bacolod City PIO	@bacolodcitypio	90,507	Bing Leonardia	@Cong.BingLeonardia	22,596
Iligan City	LGU Iligan City	@LGUILIGANCITY	133,876	Celso Gomera Regencia	@CelsoGomeraRegencia	25,500
Cagayan De Oro City	CDO COVID-19 Response	@cdoCOVID19response	58,477	Mayor Oscar S. Moreno	@CDOMAYOROSCARMORENO	18,970
Cabanatuan City	City Government of Cabanatuan	@lgucabanatuan	108,051	n.a.	n.a.	n.a.
Gapan City	n.a.	n.a.	n.a.	Mayor Emeng Pascual - Serbisyo Publiko	n.a.	725,916
Cebu City	Cebu City Public Information Office	@CityofCebuOfficial	240,928	Edgar Labella	@EdgarCLabella	362,321
Mandaue City	Mandaue City Public Information Office	@MandaueCityPublicInformationOffice	141,113	Jonas Cortes	@JonasCortesPH	35,105
Lapu-Lapu City	n.a.	n.a.	n.a.	Junard "Ahong" Chan	n.a.	441,531

[a] Number of followers as of 2 May 2021
n.a. means not available..

Appendix 2. Approval rankings of Metro Manila mayors



Notes:

1. For April 2-6; April 13-18; and May 5-8, 2020: Publicus Asia, Inc. Q: Please indicate your level of approval or disapproval with the manner in which your Mayor and City Government is responding to COVID-19 pandemic. Number of respondents: 1,000.
2. For June 15, 2020: RP-Mission and Development Foundation, Inc. Q: Do you approve, disapprove, or neither approve nor disapprove of the way in which your Mayor and City Government are responding to the COVID-19 pandemic? Number of respondents: 3,000.
3. For December 5-15, 2020: Q: Overall performances, for the year 2020 –– do you approve or disapprove of the way [Mayor's name] is handling his/her job as City Mayor? Number of respondents: 3,500.
4. For February 20-28, 2021: Q: Do you approve or disapprove of the way [Mayor's name] is handling his/her job as City Mayor? Number of respondents: 3,500.