

Article

Social Determinants, Urban Planning, and Covid-19 Response: Evidence From Quito, Ecuador

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Abstract

Covid-19 has put all urban planning systems around the world to the test. Cities' design and how these are managed are being observed, analyzed, and even questioned from the perspective of the pandemic. Density and poverty have been two fundamental aspects to manage in the pandemic scenario in cities of the Global South, which face this challenge along with other pre-pandemic planning problems. In the city of Quito, Ecuador, the response to the pandemic has been coordinated through regulations issued by the emergency operations center at the national level, and the information (number of cases) has been recorded per parish. The objective of this research is to determine if there is a relationship between Covid-19, poverty, and population density at the parish level for the canton of Quito. The results have shown that there is no correlation. What they did show is that due both to the difficulties of responding to the pandemic and the city's planning structure, another type of characterization, or characterizations, of the territory (for example, by scenarios or by situations) is needed, which can respond to the needs of the most vulnerable groups. Another observable result was that the gap between urban planning and management instruments and the complexity of territorial needs contributes to the polarization of local government approaches, which compromises urban planning with minimum continuity and coherence.

Keywords

Covid-19; pandemic scenario; Quito; social determinants; urban planning

Issue

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1. Introduction

SARS-Cov-2 is one of the seven types of coronaviruses that infect humans and the cause of the Covid-19 disease (Turner-Musa et al., 2020). The "transmission of the virus occurs through the air via coughing and sneezing, close personal contact with someone infected with the virus, and touching an object or surface contaminated with the virus" (Turner-Musa et al., 2020). It was considered a major global public health emergency—like the world had never seen before—for three main reasons: (a) never has the world been more populated, (b) never

has it been more urban than rural, and (c) never has it been so interconnected.

In a populated, urbanized, and interconnecting world, the differences between health equity and social determinants of health make it particularly difficult to address: a global pandemic that requires a local approach, especially when we understand that a social determinant for health refers to "conditions in the places where people live, learn, work, and play that affect a wide range of health risks and outcomes" (World Health Organization [WHO], 2020). Covid-19 is highly transmissible, and mitigation strategies were and remain key to the

containment of the pandemic. However, many of these strategies (physical distancing, accessing testing when symptomatic, maintaining hygiene measures, restricting mobility, etc.) are not accessible or sustainable for people with lower incomes or living in areas distant from health centers.

In March 2020, Covid-19 was declared a “public health emergency of international concern” by WHO. Since then, entities such as UNESCO (2020) have recognized that all cities in the world are affected by the Covid-19 pandemic. In response to the impact of the pandemic, the WHO (2020) created the “guide for strengthening preparedness for Covid-19 in cities and urban settings: interim guidance for local authorities.” The WHO recognizes that by the nature of cities (high population density relative to rural settings), the risk of spreading infectious diseases is often high. The global entity shows special attention to congested areas and to the situation of people who often depend on extensive, crowded, public transport networks to get from one place to another. Density and precariousness, or poverty, are two factors that combine to make some populations more vulnerable than others.

The disparities in the incidence, prevalence, and mortality associated with Covid-19 are not always evident, even though “the conditions leading to these disparities may be a function of social determinants of health and stigma linked to the disease” (Turner-Musa et al., 2020). The WHO (2020) also recognizes that one of the greatest challenges for cities, particularly in the Global South, are slums, as a substantial proportion of their inhabitants are often unemployed or dependent on the informal economy for survival. The organization has indicated that the groups vulnerable to outbreaks of Covid-19 in urban settings are informal settlements; the urban poor; the homeless; people living in inadequate housing conditions; refugees and migrants; the elderly, especially those at risk of isolation; people with underlying medical problems; socially marginalized groups; and people at risk of interpersonal harm, violence, or self-harm due to physical distancing measures. Many of these groups considered vulnerable are found in slums on the outskirts of cities.

In the specific case of the Latin American urban reality, the Inter-American Development Bank, with the support of regional experts such as Alejandro Aravena (Pritzker Prize 2016, the most important prize in Architecture worldwide), built a guide of recommendations called *What Can We Do to Respond to the Covid-19 in the Informal City?* (Vera, 2020). This document states that the inhabitants of informal neighborhoods face Covid-19, although with greater vulnerability to risk, and for this reason proposed recommendations to improve public policy response, considering key social determinants. These recommendations also included urgent response, mitigation, and prevention measures. Identify, protect, connect, and control, are the four working axes to address the pandemic. Reactivate,

train, reconfigure, mitigate, and reconditioning are the five axes of recovery proposed to address the pandemic’s long-term impacts (Vera, 2020).

2. Key Social Determinants in the Pandemic

Due to advances in science and information and communication technology, the pandemic has been monitored and studied as it impacts the population, and as the authorities in each country design and implement policies to help mitigate or contain it. Researchers from different areas of knowledge and different countries have worked to make visible the link between Covid-19 and other variables related to social determinants, helping to identify human groups vulnerable to the pandemic. Chang et al. (2022), for example, identified 21 predetermined country-level factors that explain variations in weekly Covid-19 morbidity and mortality in 91 countries between January 2020 and the end of that year. Although the study used only reported data, poverty and density were identified as key determinants. Looking at the United States, Burton et al. (2020) identified the variables education, economic status, and overall environment, while Abrams and Szeffler (2020) identified poverty, physical environment (e.g., smoke exposure, homelessness), and race or ethnicity. Still in the United States, the percentage of non-English-speaking households, uninsured individuals under the age of 65, and that of individuals living at or below the poverty line also proved important variables (Fielding-Miller et al., 2020); finally, Rollston and Galea (2020) identified spending on health care and health outcomes.

Murgante et al. (2020) identified Covid-19 and geographical correlations in Italy: Their study analyzed spatial autocorrelations among area units (province level) and the effect of the interaction among (a) geographical, (b) environmental, and (c) socio-economic characteristics. Ataguba and Ataguba (2020) and Shammi et al. (2020) identified demographic risk groups in a Covid-19-ridden Bangladesh based on the public perception of a socioeconomic crisis and human stress levels in a resource-limited setting. Looking at the fatality rates in major urban agglomerations in India, authors linked Covid-19 to variables such as districts with international airports, population density, health indexes, human development indexes, expenditure on health per-capita (Suryawanshi et al., 2020), dilapidated buildings, housing conditions, shared precarious housing, main sources of drinking water, numbers of households not having latrine facilities within the premises, and drinking water from untreated sources (Mishra et al., 2020).

Exploring the effects of Covid-19 in Nairobi slums, Nyadera and Onditi (2020) insist on the historical marginalization of people who live in this kind of settlement—who are often excluded from economic and health policies—and focus on many variables grouped as basic habitability. For Latin American slums, Vera (2020) asked what could we do to respond to Covid-19 in the

“informal city” and showed that slums are still the areas of greatest concern in Latin America due to the accumulated social debt in health, education, and employment, all key social determinants in this situation. In Colombia, Varela et al. (2021) pointed to a lack of affiliation to the health system and low socioeconomic levels as key social determinants considered risk factors that could be monitored thanks to the early surveillance process established in the country.

In Chile, Cerda and García (2021) study the willingness to pay for the vaccine; their sample demographics included 71.3% of medium- to high-income individuals between 30 and 59 years of age, explaining why, in their results, more than 70% were willing to pay for the vaccine. The correlation of these results according to economic level shows that even *social inequality* is a key social determinant for Chile in the fight against Covid-19. Finally, in the Ecuadorian context, willingness to pay for the Covid-19 vaccine was associated with income and employment status—once again, social inequality is identified as a social determinant (Sarasty et al., 2020).

If the WHO and the Inter-American Development Bank recognize that slums contain social determinants that make them more vulnerable to facing Covid-19 and its socioeconomic consequences, if researchers around the world have been working on identifying variables to determine the most vulnerable human groups facing the pandemic; then it is logical to expect that the data to monitoring the Covid-19 infections responds to the previous distinction of the vulnerable human groups in each context. As this is only an assumption, we will check if this has been considered or not in the case of Quito, the most populated city in Ecuador.

3. Case Study: Quito

In the emergency scenario derived from the pandemic, the Emergency Operations Committee (COE, following the Spanish name) is the Ecuadorian inter-institutional body responsible for coordinating the actions necessary to reduce risk, as well as the response to, and recovery from, an emergency and disaster situation (República del Ecuador, 2010). In the event of an emergency, like Covid-19, COEs are activated at three levels of the state: national, provincial, and cantonal. Due to this management model, the national level emits resolutions, protocols, and inter-ministerial agreements throughout the country (COE Nacional del Ecuador, 2021). The provincial level can emit its own resolutions if it does not contradict or reduce the binding nature of the dispositions issued at the national level (COE Provincial de Pichincha, 2021). In the case of the cantonal level (a part of a province), it does not issue resolutions, which makes visible, in a territorialized way, the cases of contagion, recovery, or mortality of the pandemic at the provincial level, even though the Quito canton has its own city hall.

On the other hand, the smallest unit of the political-administrative division of the Quito canton is the parish.

In fact, Quito canton (also called the Metropolitan District of Quito) divides its management into eight zonal administrations (municipal management offices) that administer several parishes (32 urban parishes and 33 rural and suburban ones, 65 in total). The city of Quito is still governed by management and planning units that were delimited in the Territorial Division Law of 1861 (followed by several others, until the last update of the Organic Law of Territorial Planning, Use and Management of Land of 2016 carried out in 2022). The inhabitants of Quito represent 86.9% of the population of the province of Pichincha, more than 70% of which lives in the 32 urban parishes, some 2,414,585 people as estimated by the National Institute of Statistics and Census (INEC; see also Municipio del Distrito Metropolitano de Quito, 2012, 2014).

In Ecuador, previous studies about poverty showed its multidimensional aspects. The multidimensional poverty index (MPI) was a significant effort to determine human groups in poverty, considering the elements that promote and/or perpetuate it. The increase in the growth of slums is one of the most complex challenges facing Ecuadorian cities. Housing depends not only on the construction of a space to live in but also on the accessibility conditions to the areas that concentrate the supply of employment and services in the city. This is one of the many reasons why the urban periphery in the city of Quito is growing. These neighborhoods, which are already part of the urban structure of the city, are included in an administrative macro-zoning of parishes (which integrates several neighborhoods of diverse typologies and economic conditions). However, this type of territorial planning organization has important limitations in identifying the most vulnerable citizens in the face of the pandemic situation.

According to the Ministry of Health of Ecuador, the first case of coronavirus was confirmed on February 29, 2020. On March 13, 2020, the COE was activated for the coordination of the emergency. This will henceforth be the only official channel of information on pandemic management. By April 2020, Ecuador had one of the highest Covid-19 mortality rates in all of Latin America (Torres & Sacoto, 2020). The city of Quito led, along with the city of Guayaquil, in infections and mortality rates (Carrión & Cepeda, 2021). This research identifies, among the causes of the high levels of mortality in the city of Quito, the impossibility of applying public policy measures focused on the needs of each group due to the lack of territorial information available.

The ability to identify the most vulnerable groups was especially important in Quito, not only because the capital was one of the main sources of infection, but because of its high inequality and high mobility (from one district to another) of its population. As for inequality in the city of Quito, the population in quintile 1 received 13% of the income of the highest quintile and could cover 19% of the cost of the basic basket (Instituto Metropolitano de Planificación Urbana [IMPU], 2018).

These high levels of inequality result in groups excluded from access to opportunities which would improve their quality of life (Olarte, 2021). In Quito, according to the multidimensional approach, 7.1% of the population was living in poverty. The figure is similar considering the poverty line. 3.35% of children work more than 25 hours a week (Planificación del Distrito Metropolitano de Quito, 2013). Quito also has a special capacity as a capital city to attract external migration, especially from Venezuela due to the country's context, as well as from rural Ecuador (Herrero-Olarte, 2018). In Quito, 13.1% of the population are migrants, 84% of whom have come from another province in the country (INEC, 2018). Having these groups monitored is essential for any improvement that you want to implement in the city, but it is especially important to manage a pandemic.

In practice, the territorial information available is erroneous because it is treated by parishes. As they are so large, in the same parish, different social classes coexist in neighborhoods which show an average income and access to basic services that are not representative of the reality that is lived in each parish. As a result, the vulnerable population did not receive the most attention to prevent infection within the territory because the territorial information is erroneous. This explains the results of this research, which concludes that the parishes with greater population density and poverty are not the ones that experienced the greatest contagions.

As of April 6, 2020, Ecuador had one of the highest Covid-19 mortality rates in Latin America, a country with a very asymmetrical context (Andean Cordillera, Amazon, coastal zone, and Galapagos Islands) that shows very different local capacities, communication, and geographical and ethnic factors (Torres & Sacoto, 2020). At the beginning of June 2020, the Covid-19 mortality rate in Ecuador was 8.5% (Alava & Guevara, 2021); the city of Quito has possibly the greatest amount of resources and installed capacity compared to other cities in the country. It was observed that coastal regions had higher rates than the highlands, and that living above 2,500 meters, as the city of Quito is located, was associated with a lower risk of mortality compared to populations living at lower altitudes (Ortiz-Prado et al., 2021); an advantage, if one does not take into account variables such as the governmental assignment of resources versus the levels and dimension of urban poverty.

Attending to the related literature, the parishes most affected by Covid-19 in Quito would be the poorest ones; the lower the incomes, the more difficult the access to private sanitation and Covid-19 tests. In addition, the poorest parishes have the highest rates of self-employment, defined by less accumulated capital and fewer opportunities to work from home. In addition, density rate would be a fundamental main factor to be considered. Parishes with higher residential density could not avoid physical contact or maintain the recommended social distancing. Consequently, these parishes would have undergone the most significant infection lev-

els. In this research, we try to identify the link between COVID-19, poverty, and density by parish, attending the available data. To compare the data, we use the confirmed cases of COVID-19, the MPI, and the population density index, all by parish.

4. Methodology

The objective of this research is to determine if there is a relationship between COVID-19, poverty, and population density at the parish level for the canton of Quito. Based on the 2010 Population and Housing Census conducted by INEC, Quito had 2,239,191 inhabitants (INEC, 2010). Based on projections estimated by INEC, in 2018, Quito had 2,781,641 inhabitants (INEC, 2018). Quito has 33 rural parishes and 32 urban parishes. We have only considered urban parishes. The data concerning the confirmed cases of COVID-19 is from the reports generated by the Provincial COE of Pichincha; its source is the Ministry of Public Health of Ecuador (COE Provincial de Pichincha, 2021). The information regarding confirmed cases corresponds to PCR tests done on the 4th of August.

To measure poverty, we used the MPI by household. As the MPI is not calculated at the parish level in Ecuador, we calculated it using the 2010 Population and Housing Census prepared by INEC (2011). It is the latest survey that considers the data by parish. The official calculation of the MPI takes into consideration 12 variables that try to capture the fulfillment of minimum standards concerning human rights. In this case, 10 indicators are available to calculate the MPI by parish in Quito. In Table 1, we detailed the 12 variables generally considered to calculate the MPI and the 10 that we take into account in this case. The multidimensional poverty rate (MPR) and the poverty intensity (IP) were first calculated. The MPI is defined as the product between MPR and IP. The MPR is the percentage of people who are deprived in one-third or more of the weighted indicators. The IP is the weight that the Ecuadorian State gives to the different indicators to give greater importance to some than to others (Castillo & Jácome, 2015).

To estimate population density, the 2010 Population and Housing Census was again used to obtain the number of persons, households, and dwellings for each parish. In this case, the data regarding the area of each parish were provided by the Municipality of the Metropolitan District of Quito. In this way, the population density is estimated by dividing the number of people in the parish by their respective area. Similarly, the density of households and dwellings is calculated. The data on the number of COVID-19 cases, the MPI, and the population density by parish are presented in three maps. In two dispersion diagrams, the data is related. In the first one, we link the COVID-19 cases and the MPI; in the second one, the COVID-19 cases and density.

Table 1. Variables used to calculate the MPI at the national and parish levels.

Dimension	Shortcomings	Criteria	Weighting INEC (National)	Weighting from CENSUS (Parishes)	
Education	25%	Failure to attend basic education and high school	Children between 5 to 14 years old who do not attend a basic education center and teenagers between 15 to 17 who do not attend school.	33%	50%
		Non-access to higher education for economic reasons	Teens between 18 to 29 years old, having completed high school, who cannot access tertiary education due to a lack of financial resources.	33%	—
		Incomplete educational attainment	People between 18 to 64 years old who have not completed basic education, that is, with less than 10 years of schooling and who do not attend a formal education center.	33%	50%
Labor and Social Security	25%	Child and teen employment	Children between 5 and 14 years old who are employed in the reference week, are identified as private of the right to work, to be considered prohibited child labor. For adolescents between 15 to 17 years old, they are considered deprived of the right to work if, while they are employed in the reference week, fulfill one of the following conditions: received less than the Unified Basic Salary remuneration, do not attend school, or work over 30 hours.	33%	33%
		Unemployment or inadequate employment	People 18 years old or older who in the reference period were unemployed. In addition, are considered deprived, employ people who have inadequate employment.	33%	33%
		No contribution to the pension system	Employed people 15 years old or older who do not contribute to any form of social security; excluding deprivation of employed people aged 65 or more who do not contribute, but receive retirement pension. People who are unemployed or economically inactive, aged 65 years or more, are considered in deprivation if they do not receive retirement pension, BDH, or Bond Joaquin Gallegos Lara.	33%	33%
Health, Water, and Food	25%	No public water service network	Members of households that obtain water that is not sourced from the public network.	50%	100%
		Extreme poverty by income	People whose family per capita income is below the extreme poverty line.	50%	—
Habitat, Housing, and Healthy Environment	25%	Overcrowding	Members of households that have more than three people per bedroom exclusively for sleeping.	25%	25%
		Housing shortage	People whose housing, due to materials or the state of the walls, floor, and ceiling are considered in qualitative or quantitative deficit.	25%	25%
		Without excreta sanitation	People from urban areas whose house has no toilet connected to sewerage. In rural areas, deprived people are those whose housing does not have a sewer or septic tank.	25%	25%
		Without garbage collection service	People who live in homes that do not have access to municipal waste management services are classified as deprived in this indicator.	25%	25%

Source: INEC (2011).

5. Results

The first map shows the number of COVID-19 cases per 1,000 dwellings per urban parish in Quito (Figure 1).

The urban parishes in the south and downtown have the highest level of COVID-19 cases. The urban parish with the highest number of cases is Chillogallo, with approximately 72.2 cases per 1,000 dwellings, and the lowest number of cases is 1.6, in Ponceano, in the north. This graph answers the question of where the largest number of COVID-19 cases in the city of Quito is.

The second map shows the MPI by household (Figure 2). The urban parishes with the highest levels of poverty are on the borders of the city, in the north and the south, and in the downtown area. The urban parish with the highest MPI is Guamaní, with 0.182, and the lowest value is 0.031 in La Concepción. We should remember that this is one of the most important social determinants considered worldwide as key in pandemics. This graph answers the question: Where is the largest number of people living in poverty in the city of Quito?

The third map shows the population density by urban parish (Figure 3). The urban parishes with the lowest levels of density are on the borders of the city, in the north and the south. The urban parish with the lowest density is El Condado, with approximately 1,569.7 inhab-

itants per km², and the highest value is 17,564 inhabitants per km², in Solanda. This graph answers the question: Where is the highest concentration of people in the city of Quito?

The union of the three questions answered by the graphs is “Where is the population most vulnerable to COVID-19 in the city of Quito?” to design effective and territorialized contingency strategies such as availability of more medical resources if needed, availability of detection brigades, availability of additional biosecurity measures, etc.

Figure 4 shows the relationship between COVID-19 cases and the MPI by parish. We would expect a positive correlation, which means that in the parishes with the highest MPI, the cases of COVID-19 would be most elevated. We could not find the awaited relationship. The correlation coefficient is 17% and the R2 correlation coefficient is 29%.

Figure 5 shows the relationship between COVID-19 cases and density by parish. We also expected a positive correlation, meaning that in the parishes with the highest density, the cases of COVID-19 would be most elevated. We could not find the expected relationship. The correlation coefficient is 15% and the R2 correlation coefficient is 2%.

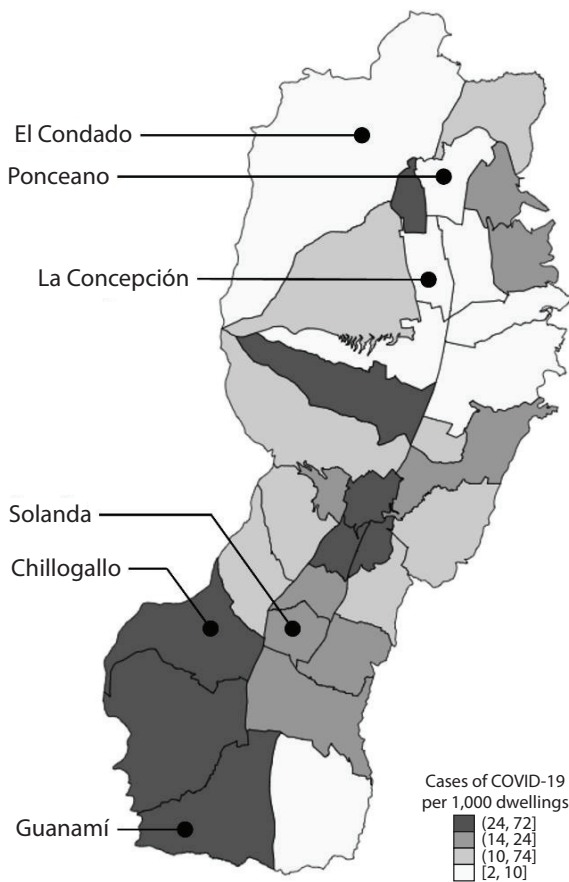


Figure 1. COVID-19 in urban parishes. Source: Authors based on data from INEC (2018).

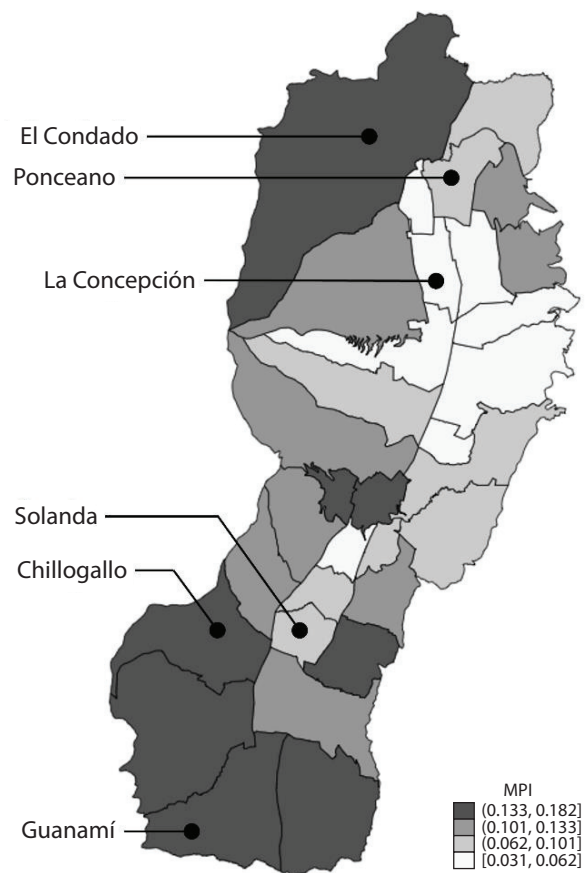


Figure 2. MPI. Source: Authors based on data from INEC (2018).

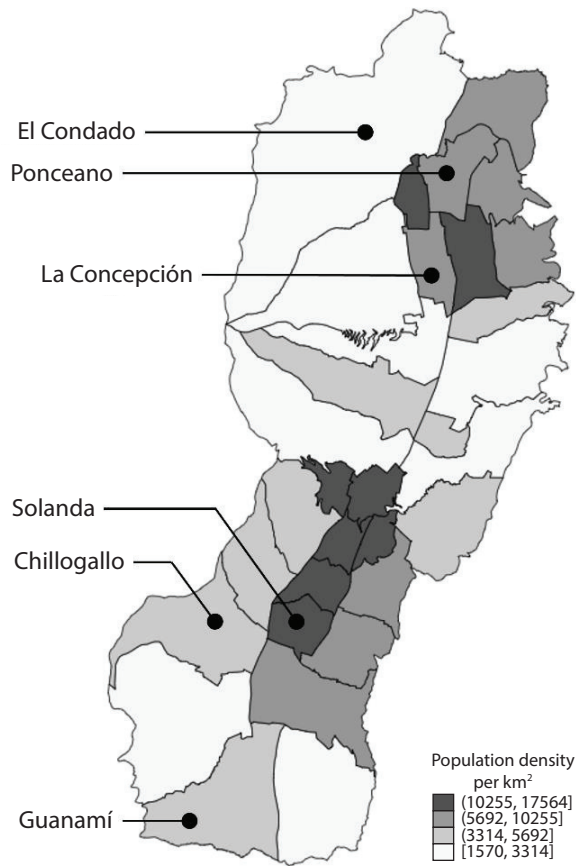


Figure 3. Population density per km². Source: Authors based on data from INEC (2018).

6. Discussion

If poverty and population density have been identified as key social determinants in the contagion of COVID-19, and in some studies with mortality, in Quito, the lack of correlation is due, among other factors, to an urban planning structure that does not correspond to the current needs of the territory, and which is of little use in the event of such an emergency.

To implement targeted public policy strategies, it would be necessary to work through smaller territorial units, such as neighborhoods. The development of public policy through parishes makes it difficult to implement strategies differentiated according to density and poverty not only because of the pandemic but also in many other areas related to the quality of life of citizens. As a result of the difficulty in territorial planning, a commitment to mass vaccination was made through public

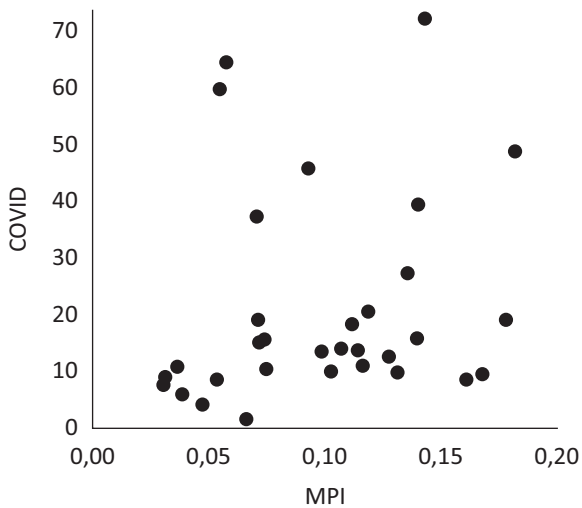


Figure 4. COVID-19 and MPI.

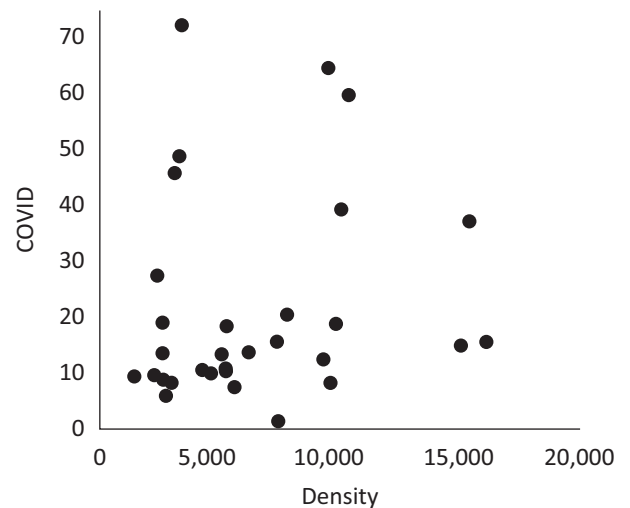


Figure 5. COVID-19 and density.

policy. On the one hand, there was the challenge of sending key messages with the least risk of interpretation, but on the other hand, this need to standardize the message did not respond to the diversity of territorial needs, which should have considered the social determinants of health (WHO, 2020) indicated by several studies from the health area.

The lack of territorialized information at the neighborhood level is an example of the limited importance traditionally given to urban planning in Quito, as in other Latin American cities, and that has defined its form. The ruling class moved to different neighborhoods when the ones they were occupying were not equipped by public policy with the inputs needed to maintain their quality of life. The upper classes have moved on several occasions, in turn moving the economic center of the city; currently they have ended up moving to the gated communities on the outskirts of the city, where they do not need public intervention, pursuing the idea of a garden city. The result is a dispersed city with several centralities that merit differentiated strategic interventions that in practice do not take place because there is no budget for it (Bustamante-Patiño & Herrero-Olarte, 2017).

The city of Quito has not had obligatory urban planning, just as it has not had the necessary resources to cover the basic needs of citizens. Despite this, significant efforts have been made to rethink the city from a perspective that more adequately considers its current dynamics, such as the proposals for the dynamization of centralities, to balance the territory; but with the changes brought about by municipal authorities, these efforts have been dismissed (Herrero-Olarte & Díaz-Márquez, 2019). The lack of a public budget responds to the economic model followed by the country, which has sought minimum participation of the State in the economy. The developmental model in the South, as it evolves from the neoclassical model in the North, questions the effectiveness of a State, which would absorb resources that could be used by the market more efficiently (Friedman et al., 1983). Proof of this is the lost Latin American decade, which has among its causes the misuse of the public debt of governments contracted in the seventies (Serbin et al., 2012).

Although this economic model has failed to improve the quality of life of citizens in Latin America (Rodrik, 2006), developmentalism continues to be understood as the way forward (Lander, 2000). Its mystification responds to the unidirectional and linear vision proposed by the model, which can only aspire to improvement. Since there is no self-image in relation to improving the quality of life, it cannot be seen as possible (Latouche, 2007). Without alternative referents, wanting a way of life that does not pursue the objectives previously defined by the model is not understood as something exceptional. Its uniqueness in practice validates the model. The capture of the State by the elite, always with the premise of avoiding that it grows and can inefficiently use these resources when it does not devote them to cor-

ruption, is what has limited the public policy, and therefore, urban planning (Zacatula et al., 2019).

It will then be necessary to rethink the economic model to generate more public resources for urban planning and thus achieve a micro-territorialization of the information of the city of Quito, able to overcome the parish and reach the neighborhood level. Only in this way will it be possible to offer differentiated treatment according to the needs of the different collectives and to identify some fundamental social determinants in terms of health, such as housing and neighborhood density, access to healthcare, incomes, cultural beliefs and belonging to a minority race, even in legal status (Harlem, 2020; Tai et al., 2021; Turner-Musa et al., 2020). At this point, it is important to remember the situation of displaced Venezuelans who arrive on foot at reception centers in various cities in the region.

Finally, evidence of these trends can be seen in the radical difference between the two management models of the last two periods of Quito's local governments. The vision of Quito 2040 (IMPU, 2018), whose documents were written by the local 2014–2019 administration (before the pandemic), was totally discarded, even though its construction was highly participatory. Instead, the next local government (2019–2023) started a completely different planning model that, among other things, eliminated the IMPU. In contrast, it implemented a public investment model that prioritized the number of specific projects carried out and not the impact of these actions.

This lack of integration of the previous urban visions or instruments causes the loss of options or alternatives in the management and/or planning of the city. For example, if the structure of urban centers described in Vision Quito 2040 had been used to address the COVID crisis, the authorities would have better understood the need for urban mobility, especially the reactivation of public transport, according to the levels of poverty described more precisely in this instrument, as well as the need for public space to address the need for physical distancing. These planning deficiencies, as well as not helping to obtain an adequate correlation between the data compiled on COVID and the location of poverty, also do not help the subsequent post-pandemic urban processes.

7. Conclusion

Poverty and density have been identified as key factors common to many countries around the world (Chang et al., 2022); how urban planning tools estimate these social determinants within the planning system drives how the response is prepared, or at least with what baseline information the response actions are prepared. In the case of Quito, as in other Latin American cities, the political alternation has not contributed with minimum common standards—baseline—in urban planning. In the end, this has led to a gap between the different technical approaches to planning.

In Quito's slums, reducing the social determinants (poverty and high density combined) that generate vulnerability in the face of an emergency (as was COVID-19) is a gradual task that struggles between addressing the accumulated socio-spatial debt and the urban problems of the present. The complication comes when we have to talk about "multivulnerable" people (for example women, single mothers, people with a low income, low education levels, and migrants from an ethnic minority) facing overlapping events (this same woman, just recently migrated from her hometown in Venezuela to Quito and is in a refugee shelter, but in a pandemic situation). How can these other variables be contemplated, when the city's planning structure does not yet have such a baseline in a binding way in the city's management?

This study only looked at one aspect of urban planning in the city of Quito and how it responded to the COVID-19 pandemic emergency. Other studies should contrast other issues, such as access to housing, the concentration of opportunities for entrepreneurship, and safety in public space, among others, with the current planning system to highlight opportunities for its improvement. It is recommended that this study be carried out in other Latin American capitals to observe the particularities of each case, so that shared challenges and unique territorial characteristics that conditioned the response to COVID-19 can be identified.

Finally, there is a gap between urban planning and management models and instruments, which is not aggravated by the polarization of traditional political-economic approaches only: Every time local administrations disregard the efforts of past administrations, they contribute to this polarization. It will therefore be crucial to observe how self-management processes (bottom-up processes) are creating other ways of approaching the territory, even if they are not yet strong enough (in the case of Quito) to create a baseline or minimum agreements in the management and planning model of the city.

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Conflict of Interests

The authors declare no conflict of interests.

References

Abrams, E. M., & Szeffler, S. J. (2020). COVID-19 and the impact of social determinants of health. *The Lancet Respiratory Medicine*, 8(7), 659–661. [https://doi.org/10.1016/S2213-2600\(20\)30234-4](https://doi.org/10.1016/S2213-2600(20)30234-4)

Alava, J. J., & Guevara, A. (2021). A critical narra-

tive of Ecuador's preparedness and response to the COVID-19 pandemic. *Public Health in Practice*, 2, Article 100127. <https://doi.org/10.1016/j.puhip.2021.100127>

Ataguba, O. A., & Ataguba, J. E. (2020). Social determinants of health: The role of effective communication in the COVID-19 pandemic in developing countries. *Global Health Action*, 13(1), Article 1788263. <https://doi.org/10.1080/16549716.2020.1788263>

Burton, É. C., Bennett, D. H. S., & Burton, L. M. (2020). COVID-19: Health disparities and social determinants of health. *International Social Work*, 63(6), 771–776. <https://doi.org/10.1177/0020872820944985>

Bustamante-Patiño, B., & Herrero-Olarte, S. (2017). A classe dominante decisiva da forma de Quito [The decisive ruling class of Quito's form]. *Bitácora Urbano Territorial*, 27(3), 81–90.

Carrión, F., & Cepeda, P. (Eds.). (2021). Quito: La ciudad que se disuelve: Covid 19 [Quito: The city that dissolves: Covid 19]. Polis.tic Urban Lab; FLACSO Ecuador.

Castillo, R., & Jácome, F. (2015). *Medición de la pobreza multidimensional en Ecuador* [Measuring multidimensional poverty in Ecuador]. INEC. https://www.ecuadorencifras.gob.ec/documentos/web-inec/Sitios/Pobreza_Multidimensional/assets/ipm-metodologia-oficial.pdf

Cerda, A., & García, L. (2021). Willingness to pay for a COVID-19 vaccine. *Applied Health Economics and Health Policy*, 19(3), 343–351.

Chang, D., Chang, X., He, Y., & Tan, K. J. K. (2022). The determinants of COVID-19 morbidity and mortality across countries. *Scientific Reports*, 12(1), Article 5888. <https://doi.org/10.1038/s41598-022-09783-9>

COE Nacional del Ecuador. (2021). *Resoluciones COE* [Resolutions COE]. <https://www.gestionderiesgos.gob.ec/resoluciones-coe>

COE Provincial de Pichincha. (2021). *Resoluciones, situación provincial y cantonal* [Resolutions, provincial and cantonal situation]. <https://coe-pichincha.senescyt.gob.ec/situacion-cantones-pichincha>

Fielding-Miller, R. K., Sundaram, M. E., & Brouwer, K. (2020). Social determinants of COVID-19 mortality at the county level. *PLOS One*, 15(10), e0240151. <https://doi.org/10.1371/journal.pone.0240151>

Friedman, M., Friedman, R., & Lladó, A. (1983). *Libertad de elegir* [Freedom to choose]. Orbis Barcelona.

Harlem, G. (2020). Descriptive analysis of social determinant factors in urban communities affected by COVID-19. *Journal of Public Health*, 42(3), 466–469.

Herrero-Olarte, S. (2018). ¿Cómo son las comunidades marginales que generan pobreza estructural? [How are marginalized communities generating structural poverty?] *Papeles de Población*, 24(98), 157–183.

Herrero-Olarte, S., & Díaz-Márquez, Á. (2019). La necesidad de generar una nueva definición de centralidad para las ciudades latinoamericanas [The need to generate a new definition of centrality for Latin American cities]. *Arquitectura y Urbanismo*, XL(1), 89–99.

- Instituto Metropolitano de Planificación Urbana. (2018). *Visión de Quito 2040 y su Nuevo Modelo de Ciudad* [Vision of Quito 2040 and its New City Model]. <https://repositoriointerculturalidad.ec/xmlui/handle/123456789/33016>
- Lander, E. (2000). Ciencias sociales: Saberes coloniales y eurocéntricos [Social sciences: Colonial and eurocentric knowledge]. In E. Lander (Ed.), *La colonialidad del saber: Eurocentrismo y ciencias sociales, perspectivas latinoamericanas* [The coloniality of knowledge: Eurocentrism and social sciences. Latin American perspectives] (pp. 11–37). CLACSO.
- Latouche, S. (2007). *Sobrevivir al desarrollo: De la descolonización del imaginario económico a la construcción de una sociedad alternativa* [Surviving development: From the decolonization of the economic imaginary to the construction of an alternative society]. Icaria editorial.
- Mishra, S. V., Gayen, A., & Haque, S. M. (2020). COVID-19 and urban vulnerability in India. *Habitat International*, 103, Article 102230. <https://doi.org/10.1016/j.habitatint.2020.102230>
- Municipio del Distrito Metropolitano de Quito. (2012). *Plan metropolitano de desarrollo 2012–2022* [Metropolitan development plan 2012–2022]. https://www.quito.gob.ec/documents/Plan_Metropolitano_desarrollo_2012-2022.pdf
- Municipio del Distrito Metropolitano de Quito. (2014). *Diagnóstico del territorio del Distrito Metropolitano de Quito* [Diagnosis of the territory of the Metropolitan District of Quito]. <http://gobiernoabierto.quito.gob.ec/wp-content/uploads/documentos/pdf/diagnosticoterritorio.pdf>
- Murgante, B., Balletto, G., Borruso, G., Las Casas, G., Castiglia, P., & Dettori, M. (2020). Geographical analyses of Covid-19's spreading contagion in the challenge of global health risks: The role of urban and regional planning for risk containment. *TeMA-Journal of Land Use Mobility and Environment*, 2020, 283–304. <https://doi.org/10.6092/1970-9870/6849>
- National Institute of Statistics and Census. (2010). *Censo de población y vivienda 2010* [Population and housing census 2010]. <http://www.ecuadorencifras.gob.ec/censo-de-poblacion-y-vivienda>
- National Institute of Statistics and Census. (2011). *Base de datos: Censo de población y vivienda 2010* [Database: Population and housing census 2010]. <https://www.ecuadorencifras.gob.ec/base-de-datos-censo-de-poblacion-y-vivienda>
- National Institute of Statistics and Census. (2018). *Tabulados Encuesta nacional de empleo, desempleo y subempleo* [Tabulations of the National survey of employment, unemployment and underemployment]. <https://www.ecuadorencifras.gob.ec/enemdu-2018>
- Nyadera, I. N., & Onditi, F. (2020). COVID-19 experience among slum dwellers in Nairobi: A double tragedy or useful lesson for public health reforms? *International Social Work*, 63(6), 838–841. <https://doi.org/10.1177/0020872820944997>
- Olarte, S. H. (2021). *¿Qué variables de movilidad están asociadas con la pobreza urbana? El caso de Santiago de Chile y Quito* [What mobility variables are associated with urban poverty? The case of Santiago de Chile and Quito]. ACE: Arquitectura, Ciudad y Entorno.
- Ortiz-Prado, E., Simbaña-Rivera, K., Barreno, L. G., Díaz, A. M., Barreto, A., Moyano, C., Arcos, V., Vásconez-González, E., Paz, C., Simbaña-Guaycha, F., Molestina-Luzuriaga, M., Fernández-Naranjo, R., Feijoo, J., Henríquez-Trujillo, A. R., Adana, L., López-Cortés, A., Fletcher, I., & Lowe, R. (2021). Epidemiological, socio-demographic and clinical features of the early phase of the COVID-19 epidemic in Ecuador. *PLOS Neglected Tropical Diseases*, 15(1), Article e0008958. <https://doi.org/10.1371/journal.pntd.0008958>
- Planificación del Distrito Metropolitano de Quito. (2013). *Diagnóstico de la niñez y adolescencia en el DMQ* [Diagnosis of childhood and adolescence in the DMQ]. Municipality of the Metropolitan District of Quito.
- República del Ecuador. (2010). *Decreto ejecutivo 489. Reglamento a La Ley de Seguridad Pública Del Estado: 6–7* [Executive decree 489. Regulation to the Public Security Law of the State: 6–7]. <https://www.telecomunicaciones.gob.ec/wp-content/uploads/2018/06/Reglamento-a-la-Ley-de-Seguridad-Publica-y-del-Estado.pdf>
- Rodrik, D. (2006). Goodbye Washington consensus, hello Washington confusion. *Journal of Economic Literature*, 44(4), 973–987.
- Rollston, R., & Galea, S. (2020). COVID-19 and the social determinants of health. *American Journal of Health Promotion*, 34(6), 687–689. <https://doi.org/10.1177/0890117120930536b>
- Sarasty, O., Carpio, C., Hudson, D., Guerrero-Ochoa, P., & Borja, I. (2020). The demand for a COVID-19 vaccine in Ecuador. *Vaccine*, 38(51), 8090–8098. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7832521>
- Serbin, A., Martínez, L., & Ramanzini, H. (2012). *El regionalismo “post-liberal” en América Latina y el Caribe: Nuevos actores, nuevos temas, nuevos desafíos* [“Post-liberal” regionalism in Latin America and the Caribbean: New actors, new issues, new challenges]. CRIES.
- Shammi, M., Bodrud-Doza, M., Towfiqul Islam, A. R. M., & Rahman, M. M. (2020). COVID-19 pandemic, socioeconomic crisis and human stress in resource-limited settings: A case from Bangladesh. *Heliyon*, 6(5), Article e04063. <https://doi.org/10.1016/j.heliyon.2020.e04063>
- Suryawanshi, D. M., Venugopal, R., & Goyal, R. (2020). Factors influencing COVID-19 case burden and fatality rates findings from secondary data analysis of major urban agglomerations in India. *International Journal of Community Medicine and Public*

- Health*, 7(8), 3284–3292. <https://doi.org/10.18203/2394-6040.ijcmph20203415>
- Tai, D. B. G., Shah, A., Doubeni, C. A., Sia, I. G., & Wieland, M. L. (2021). The disproportionate impact of COVID-19 on racial and ethnic minorities in the United States. *Clinical Infectious Diseases*, 72(4), 703–706.
- Torres, I., & Sacoto, F. (2020). Localising an asset-based COVID-19 response in Ecuador. *The Lancet*, 395(10233), Article 1339. [https://doi.org/10.1016/S0140-6736\(20\)30851-5](https://doi.org/10.1016/S0140-6736(20)30851-5)
- Turner-Musa, J., Ajayi, O., & Kemp, L. (2020). Examining social determinants of health, stigma, and COVID-19 disparities. *Healthcare*, 8(2). <https://doi.org/10.3390/healthcare8020168>
- UNESCO. (2020). *Respuesta de las ciudades a COVID-19* [Cities' response to COVID-19]. <https://es.unesco.org/creative-cities/content/respuesta-de-las-ciudades-Covid-19>
- Varela, A. R., Florez, L. J. H., Tamayo-Cabeza, G., Contreras-Arrieta, S., Restrepo, S. R., Laajaj, R., Gutierrez, G. B., Guevara, Y. P. R., Caballero-Díaz, Y., Florez, M. V., Osorio, E., Barbieri, I. S., Sanchez, D. R., Nuñez, L. L., Bernal, R., Oliveros, S. R., Zapata, L. S., Guevara-Suarez, M., Uribe, A. G., & Behrentz, E. (2021). Factors associated with SARS-CoV-2 infection in Bogotá, Colombia: Results from a large epidemiological surveillance study. *The Lancet Regional Health—Americas*, 2, Article 100048. <https://doi.org/10.1016/j.lana.2021.100048>
- Vera, F., Adler, V., Acevedo, P., Rojas, F. M., Uribe, M. C., Quintero, M. C., Huerta, C., Lew, S., Soulier, M., Nacke, M., & Simonez, V. (2020). *What can we do to respond to COVID-19 in informal cities?* Inter-American Development Bank. <http://dx.doi.org/10.18235/0002348>
- World Health Organization. (2020). *About social determinants of health*.
- Zacatula, J., Acevedo González, M., & Cruz Ramos, M. R. (2019). El desarrollo en la actual situación social. Un paradigma vigente ¿Alternativas teórico-académicas pasivas? [Development in the current social situation. A current paradigm: Passive theoretical-academic alternatives?]. *GeoGraphos. Revista Digital para Estudiantes de Geografía y Ciencias Sociales*, 10(1), 34–59. <https://doi.org/10.14198/geogra2019.10.114>

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