

ANALYSIS OF BUILDING AND NEIGHBORHOOD USES IN THREE URBAN HERITAGE ZONES OF SANTIAGO

ANÁLISIS DE USOS EDIFICATORIOS Y POBLACIÓN EN TRES ZONAS TÍPICAS URBANAS DE SANTIAGO

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La protección patrimonial en Chile, en los últimos 20 años, ha estado muy influenciada por los movimientos ciudadanos, quienes buscan mantener la identidad de sus barrios. Se utilizó el instrumento de Zona Típica, desde ahora ZT, como herramienta de protección. En principio, un objetivo central de estas acciones es mantener el destino habitacional como mecanismo para preservar el tejido social. Sin embargo, en diversas ZT las fachadas habitacionales ocultan una diversidad de usos. Esta situación genera dudas respecto a la efectividad de la herramienta normativa en relación con las aspiraciones de las comunidades. En este sentido, el objetivo de la investigación fue analizar los cambios en el carácter residencial de tres barrios tras su designación como ZT. Los métodos utilizados incluyeron registro en cartografía SIG de los usos de suelo para el año 2024 se utilizó información del Servicio de Impuestos Internos; estos datos se complementaron con datos de población de los Censos 2002 y 2017. Los resultados señalan que el instrumento ZT está lejos de garantizar la perseguida preservación del tejido social. Estas conclusiones enfatizan la importancia de repensar los instrumentos de protección del patrimonio en zonas pericentrales, de manera de apuntar a un equilibrio entre la atracción de la inversión y la deseada identidad barrial que persiguen las comunidades.

Palabras clave: zona típica, movimientos ciudadanos, usos de suelo, tejido social

Heritage protection in Chile, in the last 20 years, has been strongly influenced by citizen movements, who seek to maintain the identity of their neighborhoods. The Heritage Zone instrument, from now on, HZ, was used as a protection tool. In principle, a central objective of these actions is to maintain housing destination as a mechanism to preserve the social fabric. However, in several HZs, the housing facades conceal a diversity of uses. This situation raises doubts about the effectiveness of the regulatory tool in achieving the communities' aspirations. In this sense, this research aimed to analyze changes in the residential character of three neighborhoods after their designation as HZs. The methods used included registration in GIS mapping of land uses for 2024, where information from the Internal Revenue Service was used. These data were complemented by population data from the 2002 and 2017 Censuses. The results point out that the HZ instrument is far from guaranteeing the sought-after preservation of the social fabric. These conclusions emphasize the importance of rethinking heritage protection instruments in pericentral areas to strike a balance between attracting investment and the desired neighborhood identity sought by the communities.

Keywords: heritage zone, citizens' movements, land uses, social fabric

I. INTRODUCTION

The protection of historical centers in Latin America began in the 1970s, to some extent as a reaction to the wave of architectural change that modernism brought. Legislation on the importance of heritage began, and city administration instruments were developed (Capron & Monnet, 2003). Cases such as the historic centers of Quito, Mexico City, or Buenos Aires became icons of what the new heritage protection laws should address, including their revitalization.

In this way, three types of intervention were implemented in several Latin American historical centers: the restoration of historic buildings, the housing policy, and the urban animation along with commercial development (Capron & Monnet, 2003). Both local and international policies backed these three aspects. Actors such as ICOMOS or UNESCO established different perspectives on understanding urban heritage and developed guidelines for its conservation. Despite these advances, in many municipalities, real estate and commercial pressure still prevails over the interest in preservation, which often does not go beyond tourism (Scarpaci Jr, 2002). This is how heritage protection has become subject to a superficial look in many historical centers globally. However, the importance of the historical monument is understood in a dissociated way from its functionality, and the emptying of buildings alters the interest that the building had at the time of its declaration (Durán, 2015).

Previous studies in the field of gentrification in central or pericentral urban areas of Latin America analyze gentrification associated with a variety of variables, such as the effect of real estate capital or migration processes (Catalan, 2020; Casgrain & Janoschka, 2013; Rasse et al., 2019; Rodríguez, 2021; 2021b). The research reviewed shows the controversial condition of the phenomenon. While Casgrain and Janoschka (2013), among others, emphasize the link between gentrification and socio-spatial exclusion, Rasse (et al., 2019) and Rodríguez (2021 and 2021b) conclude that displacement may or may not occur when these phenomena occur. Closer to this research are the studies that focus on processes associated with tourism and the application of conservation policies in the transformation of historic neighborhoods. Among these is the study of Cabrera-Jara (2019) for the case of Cuenca (Ecuador), based on previous studies, and that of Vargas-Villafuerte and Cuevas Calderón (2020), which analyzes forms of expulsion from public space in a historic neighborhood of Callao (Peru). Within this latter group, one of the few studies after 2019 that includes land use analysis, which was also conducted based on previous studies from 1981, 2007, and 2012, is that of Ettinger and Mercado (2019). The results indicate that, instead

of touristification, the historic center of Morelia (Mexico) has been consolidated as a diversified area consistent with its status as an urban and regional center and that the observed depopulation would not be directly associated with gentrification but with a multiplicity of other variables. This article contributes to this discussion on the effects of patrimonialization on the phenomenon of gentrification by providing an integrated and comparative analysis of recent land use data, with changes in the number of residents for three historical neighborhoods in Santiago de Chile.

In the Chilean case, the National Monuments Council (CMN, in Spanish), created by Law 17,288 of 1970, applies the category of Heritage Zone (from now on, HZ). This is a protection figure whose purpose is to protect some areas' aesthetic, architectural, and historical values; "...*that stand out for their stylistic unity, materiality or constructive techniques*". These are mainly areas around some historical monuments that are being protected. In practice, this instrument does not contain tools to ensure the designated neighborhoods' proper care or enhance their sustainability (Rojas, 2014).

According to CMN records, the Metropolitan Region of Santiago de Chile has 49 HZ, of which 19 are located in the municipality of Santiago, and most of the new ones are in pericentral sectors. Although the instrument protects them from the threat of demolition, new actors can exert pressure to change their land use. These agents see the opportunity to generate new neighborhood centers as a gateway to colonize attractive spaces for new residents (Schlack & Turnbull, 2009).

In this context, this article aims to analyze the changes in the residential character of three neighborhoods after their designation as HZ. The hypothesis is that, although the HZ instrument favors the preservation of the built fabric - by promoting tourism processes - it is not a suitable tool for preserving the social fabric of neighborhoods. The methodology is based on the comparative analysis of three HZs designated in the late 1990s and early 2000s, two promoted by citizen movements and a third by a state agency. The dynamics of land use change, housing density, and the change in the number of inhabitants between 2002 and 2017 were analyzed.

II. THEORETICAL FRAMEWORK

Heritage zones and their inclusion in the current urban fabric

The valorization of heritage in cultural or historical terms constitutes a renewal model that can generate a process of

urban mobility. This originates from the changes in use inside the neighborhood and the attraction of new capital that promotes and encourages different actors to contribute to its maintenance (Schlack & Turnbull, 2011). Rojas (2014) promotes an idea of sustainable development for heritage that, with the arrival of new capital, not only enhances the neighborhood but also activates it, generating a change in the way of understanding the developments of these areas without necessarily displacing the residents who are agents of these movements (Leal-Yáñez & Inzulza-Contardo, 2018). According to Choay (2001), protecting the areas declared HZ by the State responds mainly to architecture-related aspects. This approach is confirmed in the Chilean case.

On the other hand, heritage zone declarations can potentially preserve not only the material but also the immaterial value of historical areas and the distinctive character of neighborhoods (Delgadillo, 2020). From this perspective, these declarations could play an essential role in consolidating spaces that support local cultural practices, preserving social networks in the territory, and strengthening community ties, especially in contexts of accelerated transformation (Lira & Vidal, 2022). From this perspective, the notion of a cultural neighborhood has been associated with neighborhood movements that promote its protection through struggle (Durán, 2015). In line with this approach -in the last twenty years in Chile - this instrument has been used by several social movements to "protect neighborhoods" (Leal-Yáñez & Inzulza-Contardo, 2018). According to Castells (1986), neighborhood movements are formed as a response to a situation that is perceived as threatening. In these cases, differences are generated between dominated and dominant sectors, the latter generating resistance while proposing solutions to face said dangers. These threats are mostly linked to urban restructuring processes associated with real estate interest and are framed in the global context of city commodification. This phenomenon would align with Sassen's (1991) proposal that cities have become another commodity within the capitalist market.

Rodríguez (2021) states that social change processes in pericentral areas are attributed to greater demand from different social classes, commonly associated with gentrification. Gentrified neighborhoods are those with a particular heritage content or tourist interest. This phenomenon of gentrification has usually been understood as a process where the original residents are displaced by new inhabitants with higher incomes (Inzulza & Galleguillos, 2014). Diverse research has addressed the occurrence of this phenomenon in cities' historical or urban centers, both Latin American and European (Hidalgo & Janoschka, 2014; Janoschka, 2002; Valencia Palacios, 2019). However, another type of

gentrification can occur when land is converted from residential to commercial or other uses. In its initial phases, this phenomenon can be understood positively as it contributes to providing services (stores and others) to deprived neighborhoods, particularly in the context of cities inserted in the neoliberal model where private actors, in the absence of the State, determine the existence or lack of services (Harvey, 2005). However, this process of change, when accentuated, can also constitute a threat to neighborhood identity.

The common denominator among these neighborhoods is the real estate pressure marked by the obsolescence of the built fabric and territorial planning instruments that open opportunities to monetize the land, generating new sources of business in somewhat forgotten sectors (Carrión, 2005). In these cases, the real estate pressure is not exerted through the demolition and construction of new projects, but through tourism development. Thus begins a process of tourism that directly articulates the effects of heritage and this sector (Hiernaux & González, 2014). It is even described that tourism and gentrification, together, generate displacement and an increase in the properties' values (Navarro, 2016). In this sense, Janoschka (2016) talks about the need for inclusive policies that accompany the declarations of heritage zones to mitigate the adverse effects of gentrification and ensure that the heritage is accessible and meaningful to local communities.

III. METHODOLOGY

Firstly, a bibliographic analysis was carried out to identify emerging debates on how heritage protection has developed in the HZ of Santiago de Chile, particularly those related to citizen movements and gentrification phenomena observable in these areas. As part of this work, the CMN data was analyzed to identify the HZ in the municipality of Santiago, the year of the declaration, and the agent promoting the declaration.

The case studies were chosen considering neighborhoods with similar characteristics in terms of location and centrality in the commune, whose data since the declaration was old enough to observe urban dynamics after the declaration. On the other hand, examples of resident- and state-driven processes were included. In this way, the intention was to observe possible differences in the results of both processes, which could be attributable to social fabric preservation objectives, usually sought in the declarations of a citizen origin. This is how the following neighborhoods were chosen:

HERITAGE ZONE	NAME	YEAR OF DECLARATION	DECLARED BY
1	Quinta Normal Park	1976-2009	STATE
2	London and Paris Streets Sector	1982-2018	STATE
3	Calle Dieciocho Sector	1983	STATE
4	Plaza de Armas, National Congress, and its surroundings	1986-2018	STATE
5	Enrique Concha y Toro Street sector	1989	STATE
6	Sector of the streets Nueva York, La Bolsa, and Club de la Unión. Including the Main Offices of Universidad de Chile	1989-2013	STATE
7	Casonas Av. República Sector	1992	STATE
8	Virginia Opazo Complex	1992	STATE
9	Pasaje República-General García Sector	1992	STATE
10	Santa Lucía-Mulato Gil de Castro-Parque Forestal Neighborhood	1996-1998	STATE
11	Lucrecia Valdés, Adriana Cousiño, Hurtado Rodríguez and Surrounding Streets	2000	STATE
12	Madrid Neighborhood	2000	STATE
13	Club Hípico-Parque O'Higgins Sector	2002	NEIGHBORHOOD
14	Calle Serrano Residential Complex	2003	STATE
15	Civic Neighborhood - Bulnes-Parque Almagro Intersection	2008	STATE
16	Sector delimited by Av. Viel, Av. Matta, Av. Rondizzoni and San Ignacio Street	2009	NEIGHBORHOOD
17	Sector indicated of the Yungay and Brasil neighborhoods of West Santiago	2009	NEIGHBORHOOD
18	Matta Sur Neighborhood	2016	NEIGHBORHOOD
19	Huemul Neighborhood	2016	NEIGHBORHOOD

Table 1. Heritage Zones of the commune of Santiago. Source: Preparation by the authors based on CMN data.

- Yungay-Brazil HZ, located in the western sector of the commune of Santiago. This sector mainly has one- and two-story buildings dating from the early 1900s. After the 1985 earthquake, with the 1994 Communal Development Plan, and before its declaration, buildings of fourteen or more floors began to be built. The HZ comprises a total of 117.34 hectares.
- Matta Viel HZ, located near O'Higgins Park between Viel, Rondizzoni, San Ignacio, and Manuel Antonio Matta streets. It is located in the south of the commune, close to O'Higgins Park and the Autopista Central highway. This sector mainly has a typology of modern housing complexes, with collective housing of one to four floors built by the state in the 1950s. The HZ comprises a total of 15.71 hectares.
- Santa Lucía-Mulato Gil de Castro-Parque Forestal HZ, located in the eastern part of the commune of Santiago, closest to the historic and foundational center. This sector has a significant presence of two to four-floor historical buildings built by well-known architects such as Luciano Kulscewsky. Protection has been sought to protect the characteristic architectural elements of the facades,

especially. Additionally, the maximum permitted heights were limited through a regulatory change in the Municipal Regulatory Plan. The HZ comprises a surface area of 11.6 hectares.

After processes led by the residents, the first two neighborhoods were designated as HZ in 2009 to cope with the real estate market that was beginning to emerge in the vicinity of each sector. The last case was declared after a municipal initiative in 1996, and this was extended in 1998.

To analyze the relative importance of residential use compared to other uses, particularly commercial uses, the disaggregated land uses at the property level of the Internal Revenue Service's (SII, in Spanish) digital mapping platform, updated to 2022, were collected. The predominant uses in each case were identified by making land use graphs. The spatial distribution pattern of commercial and residential uses regarding the main roads and transport infrastructures was also analyzed from the maps.

The following analyses used data from the last census in Chile in 2017 to compare the higher or lower prevalence of HZs' residential character.



Figure 1. Comparative image with the Heritage Zones of the commune of Santiago. Source: Preparation by the authors based on CMN data.

- An analysis of the population figures: the number and density of inhabitants and the number of dwellings. The data presented disaggregated at a block level, were added to obtain the total number of residents and dwellings in each polygon. For the housing density calculation, the total number of residents was divided by the total area of the polygon.
- An analysis of the distribution of inhabitants by block based on the ArcGIS software.
- A comparative analysis of the population figures of 2017 with those of the pre-census of 2012 from www.ide.cl. This was done to analyze variation trends in each HZ's population.

All the information used for the background construction was checked in March 2024.

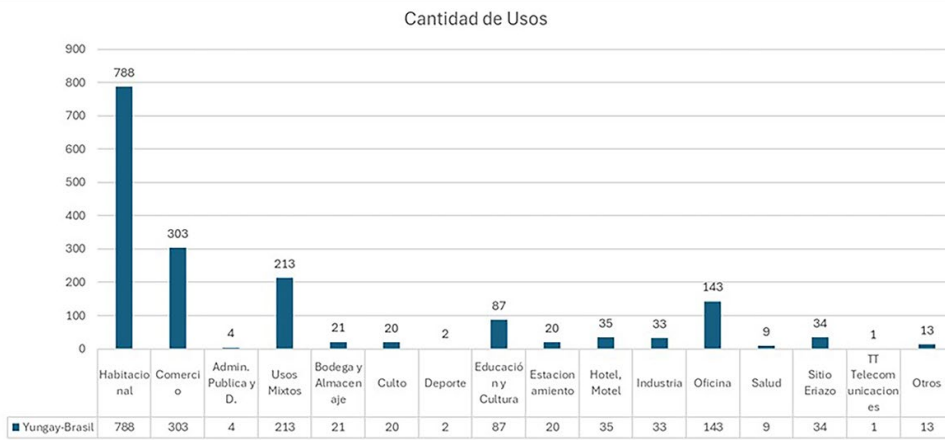


Figure 2. Yungay-Brasil Neighborhood Uses. Source: Preparation by the authors

IV. RESULTS

Origin of HZ declarations in the commune of Santiago

Heritage neighborhoods have been protected through state and neighborhood initiatives (Table 1). This directly affects how the perception of heritage in Chile has changed.

Of the commune's 19 HZs, 25% are neighborhoods declared by citizen movements. This is mainly because the upsurge of the neighborhood struggle has emerged in the last eleven years. Currently, the interest in protecting some areas against real estate pressures has become a constant not just in Santiago de Chile, but in many others in the country (Ducci, 2004). Figure 1 shows the location of the HZs in the communal context and the location of the three case studies in the western, eastern, and southern areas of the commune, respectively.

Land uses in the Yungay-Brasil neighborhood

Figure 2 shows the Yungay-Brasil Neighborhood Heritage Zone, where 1,726 properties are observed. The residential use has 788 lots, 45.65% of the total (Fig. 2). If the 213 properties classified as "mixed uses" are added, we reach 1,001 properties with housing use, i.e., 58%.

The commercial use of the neighborhood comes second, with a total of 303 properties, representing 17.55% of the total. At the spatial level, Figure 3 shows how this type of use is mainly concentrated on Ricardo Cumming Street and Brasil Ave. These two streets best represent the programmatic mix observed in the area, as they are the main avenues close to the metro station and characterize the neighborhood. Despite this, it can be

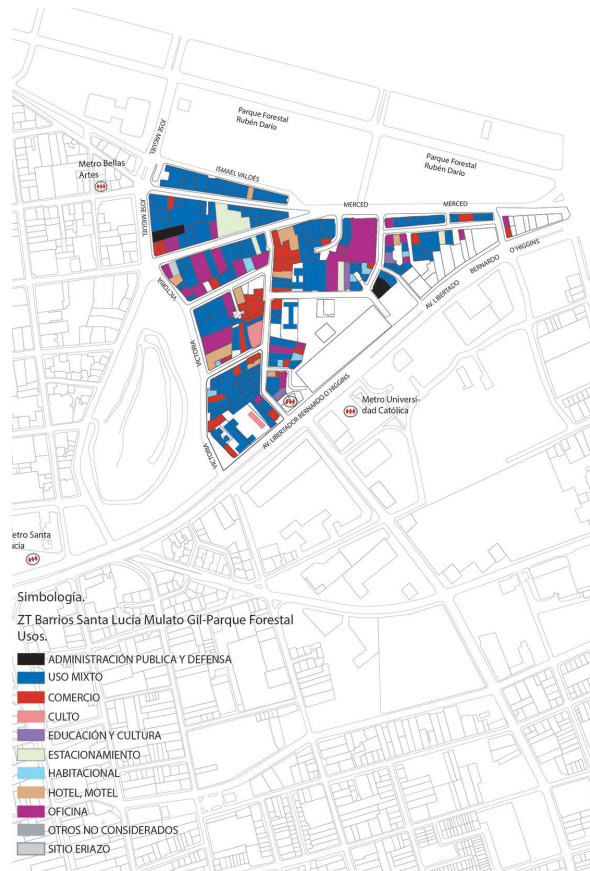


Figure 3. Mapping of destinations according to information from the Internal Revenue Service. Source: Preparation by the authors.

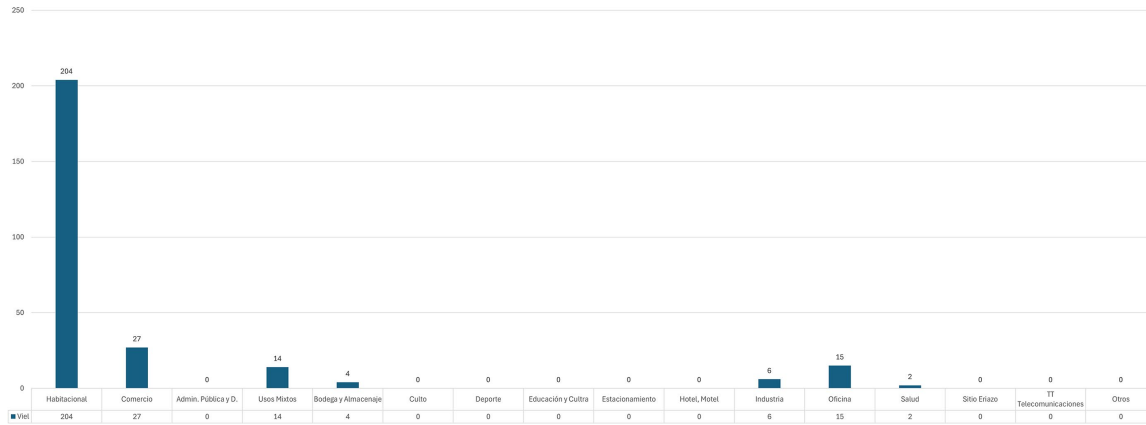


Figure 4. Distribution by number of uses. Source: Preparation by the authors.

appreciated that, at a block level, commercial use is present in all of them.

In the third position, offices are used in 143 properties, representing 8.25% of the lots in the neighborhood. As for the spatial distribution of this use, its proximity to the main avenues Ricardo Cumming, Brasil, and Alameda stands out, along with easy access to any of the five nearby metro stations. One of them is inserted in the HZ, the Cumming metro station (Line 5), which connects the Maipu sector with the southern area of the Metropolitan Region.

LAND USES - MATTA VIEL NEIGHBORHOOD

The Matta Viel neighborhood has 272 properties. In this case, Figure 4 shows that housing remains the majority use with 204 properties, i.e., 75% of the neighborhood's total lots. If this is added to mixed uses (14), the lots that include residential use reach 218, which represents 80% of the total properties.

The second most frequent use is commercial, which has 27 properties, 9.92% of the total lots in the neighborhood. Before analyzing the spatial distribution of these uses, it should be noted that this neighborhood is close to a highway and occupies only one block in width. Located near important roads and a metro station, commerce is distributed throughout the HZ. There are no points where there is a relevant concentration. On the contrary, commercial use manifests as a series of neighborhood-scale shops.

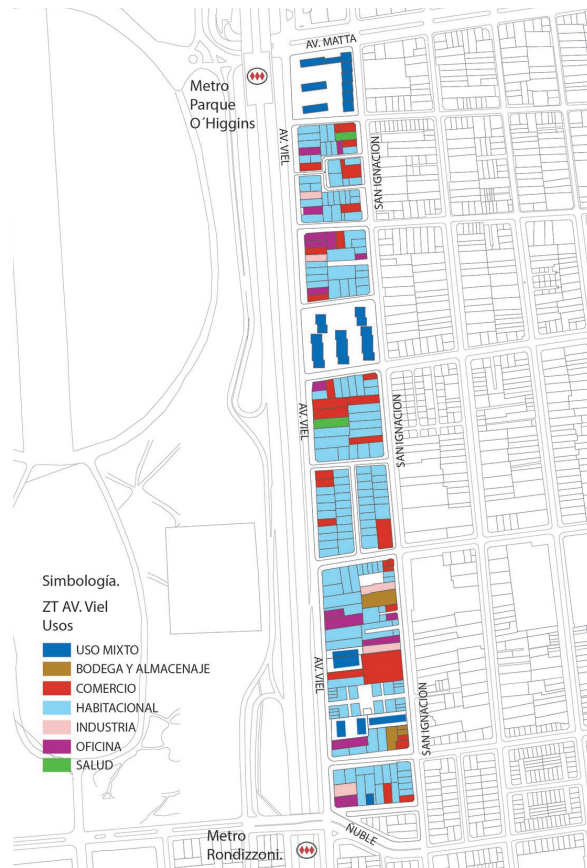


Figure 5. Mapping of destinations according to information from the Internal Revenue Service. Source: Preparation by the authors

The third most gravitating use of the neighborhood is offices, with 15 properties representing 5.51%. Figure 5 shows how these uses are mainly located on the edges of the neighborhood, in the areas most connected to the Parque O'Higgins and Rondizzoni metro stations, on Line 2, which connects the northern and southern areas of the Metropolitan Region.

Land Uses - Santa Lucía del Mulato Gil de Castro Typical Zone

Finally, the Santa Lucía del Mulato Gil de Castro Neighborhood, also known commercially as the Lastarria Neighborhood, has the most predominant commercial uses, consistent with its geographical location - the most central of the three - within the commune.

Out of 210 registered properties, 119 have mixed uses. From the observation on-site, commercial uses occur on the first floor and, in some cases, on the second, with the rest used as residential floors. 56.6% of the properties are like this. The distribution of this use is relatively homogeneous throughout the neighborhood, which is seen in each of the blocks, as shown in Figure 6.

Secondly, exclusively commercial use appears in 34 properties or 16.19% of the area's properties. These are located mainly along the main street, José Victorino Lastarria, and, to a lesser extent, in other areas near the Cerro Santa Lucía sector and Merced Street, located in the heart of Santiago in the Metropolitan Region.

Finally, and similarly to the other two neighborhoods observed, office use appears in third place. Twenty-six

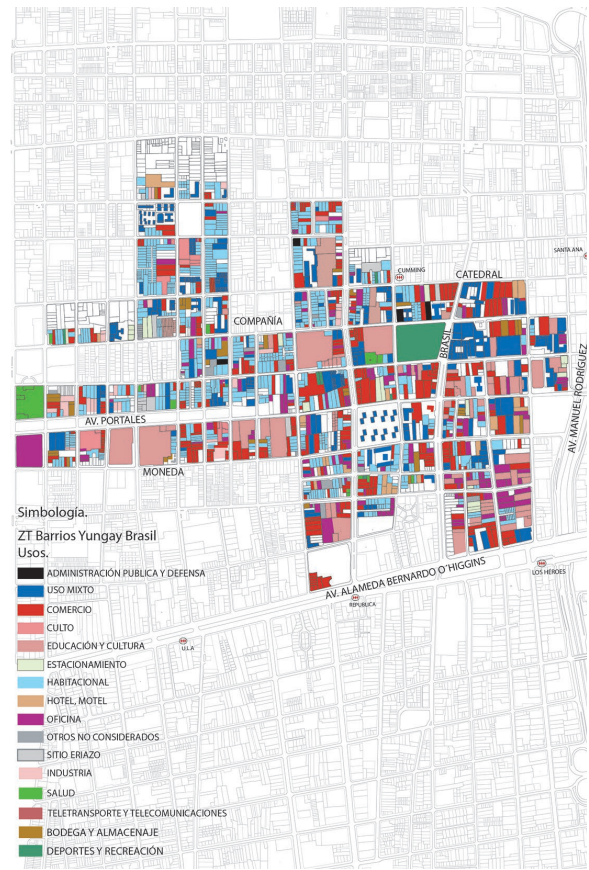


Figure 6. Mapping of uses according to information from the Internal Revenue Service. Source: Preparation by the authors.

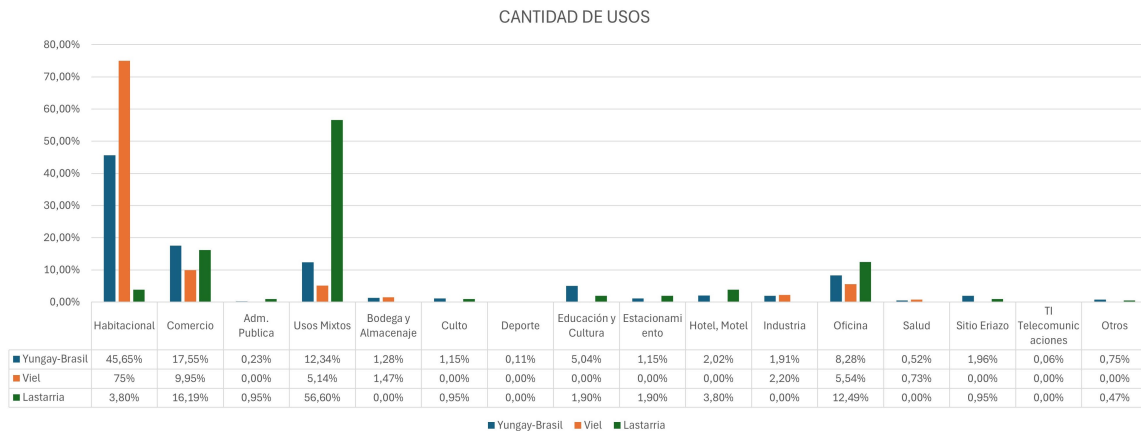


Figure 7. Comparative graph with the different percentages in the three neighborhoods. Source: Preparation by the authors.

Neighborhood	Surface area (Ha)	Inhabitants (2017 Census)	Density (Inhab/Ha)	Number of Lots with Residential Use and Resid+ Mixed Use	Total Number of Dwellings	Number of Dwellings/Lot (average)
Yungay	117.34	21,452	189	1,001	8,486	8
Matta Viel	15.71	2,007	125	218	808	4
Lastarria	11.6	8,376	722	127	6,140	48

Table 2. Comparison of the ratio of surfaces and inhabitants. Source: Preparation by the authors.

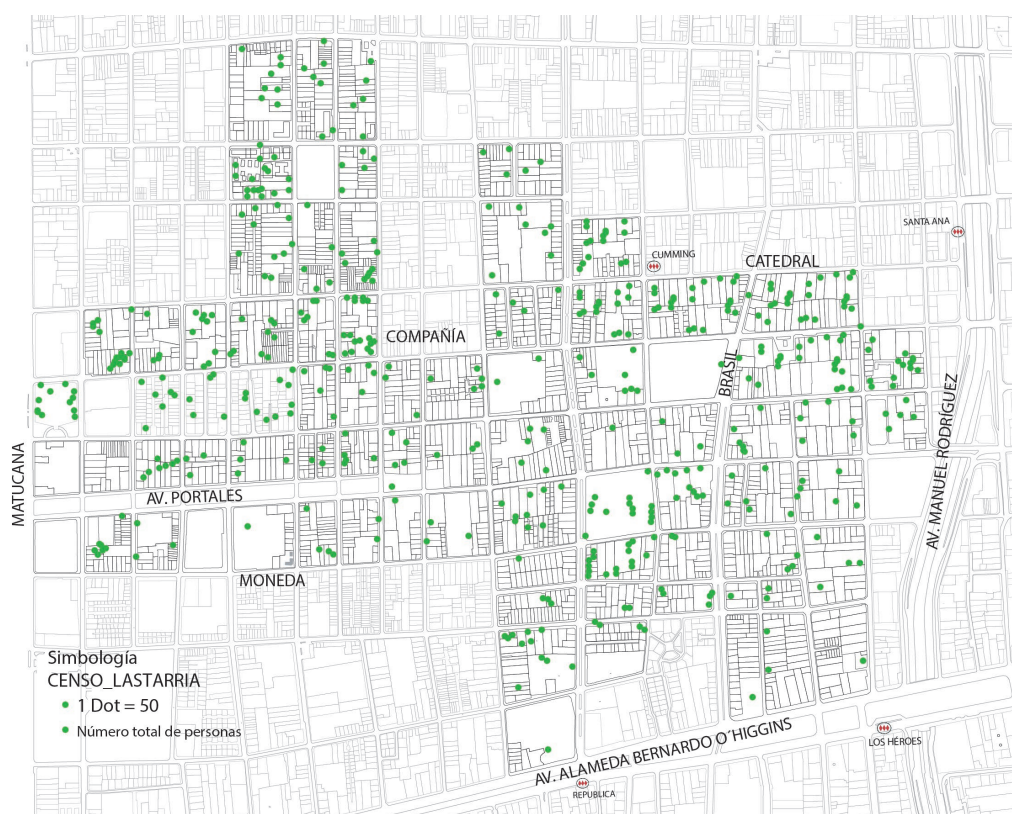


Figure 8. Comparison between distribution pattern of residents and distribution of land uses. Source: Preparation by the authors

properties have this use, representing 12.38% of the lots. This is consistent, as in Matta Viel, with the geographical location of the HZ within the municipality of Santiago since it has good connectivity and proximity to metro stations.

Figure 7 shows that the Matta-Viel neighborhood has the highest percentage of properties, with housing use for 75% of the protected area within the neighborhood. Yungay-Brazil has 45.65%, and Lastarria has 3%.

In summary, in the two HZs promoted by citizen agents (Yungay and Matta Viel), exclusively residential use remains relevant, clearly predominating over commercial. Commercial uses are important in both cases, although they are far from residential uses. It can be seen that commercial and office uses generally tend to be concentrated near main roads and transport infrastructures. This is how, in the Lastarria Neighborhood, residential use is practically irrelevant, with a clear predominance of mixed uses (commerce on the first floors and housing on the upper floors).

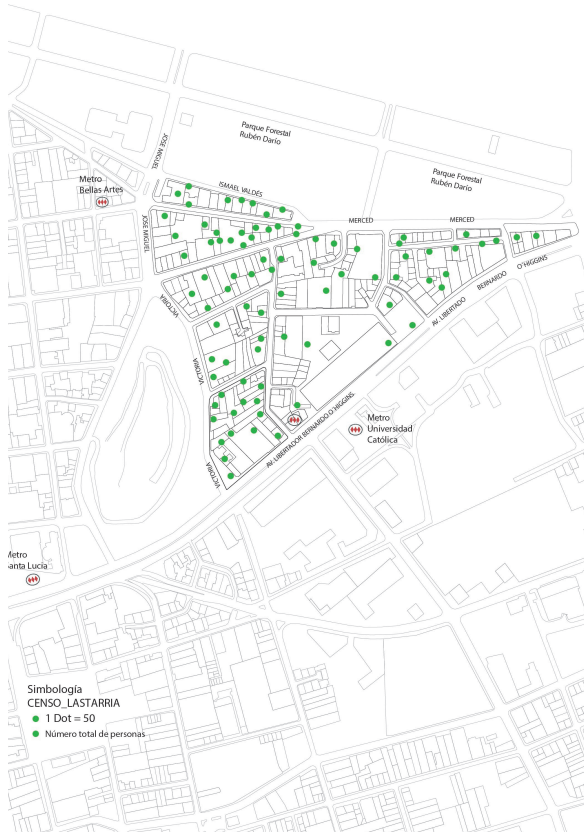


Figure 9. Location of zones with the highest incidence of residents. Source: Preparation by the authors.

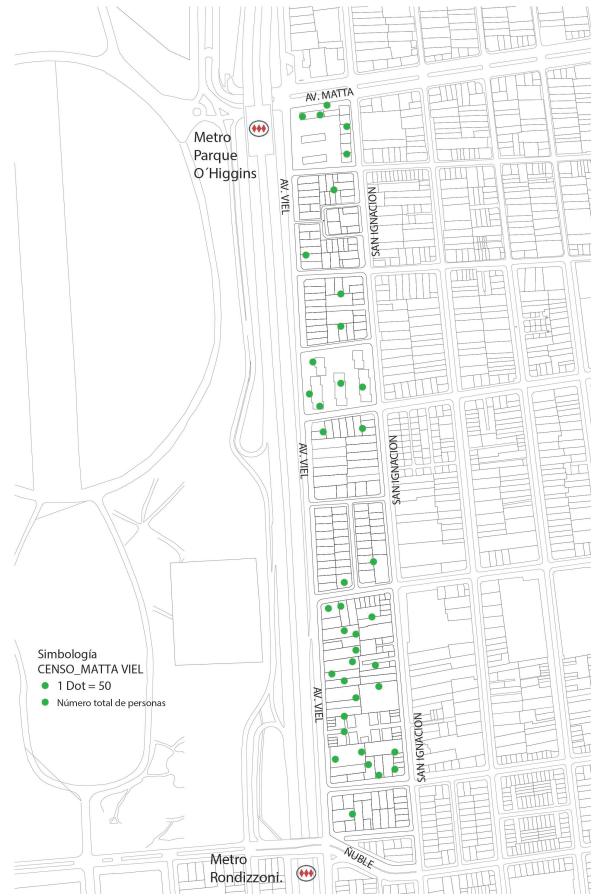


Figure 10. Location of areas that have a higher incidence of residents. Source: Preparation by the authors.

Analysis of inhabitants and land uses

On the other hand, as shown in Table 2, the 2017 Census data regarding the number of inhabitants show quite diverse situations in terms of the presence of residents in each area.

When comparing the population figures, it is seen that the Lastarria Neighborhood, despite having a clear predominance of commercial and tourist uses, has the highest housing density of the three neighborhoods; it is almost four times higher than the Yungay neighborhood and six times higher than the Matta Viel. Thus, the average number of homes per lot in the Lastarria neighborhood is six times higher than the average number of homes per lot in the Yungay neighborhood and twelve times higher than the average number of families per lot in the Matta Viel Neighborhood. Likewise, it is observed that even though Matta Viel is more extensive in area than Lastarria, the latter has four times more inhabitants than Matta-Viel.

As for the distribution pattern of the inhabitants in Barrio Yungay, Figure 8 shows a higher concentration in two areas of the HZ: i) north of Portales Ave. and west of Manuel Rodríguez, and ii) in the surroundings of the intersection of Compañía Street with Brasil Ave. (Fig. 8). The first zone has a predominance of residential uses, and the second has a predominance of mixed uses. In contrast, commercial uses tend to approach more to the 'L' formed by the main roads Alameda Bernardo O'Higgins and Manuel Rodríguez, that is to say, to the areas of greater centrality within the polygon.

Figure 9 shows the distribution pattern of the inhabitants in the Lastarria neighborhood. The highest concentrations occur in the Cerro Santa Lucía and La Alameda intersection and between Merced Street and Parque Forestal. These blocks have mixed uses and consist of 4 to 5-story apartment buildings.

As for the inhabitant distribution pattern in the Matta Viel Neighborhood, Figure 10 shows a relatively homogeneous

	2002 Census	2017 Census	Variation	% Variation
Yungay	12,545	21,452	8,907	71%
Matta-Viel	1,845	2,007	162	9%
Lastarria	12,750	8,376	-4,374	-34%
Commune of Santiago	200,792	404,495	203,703	101%

Table 3. Comparison of the number of inhabitants in the three HZs and the commune of Santiago in the period 2002-2017. Source: INE

MAIN USES	Yungay		Matta Viel		Lastarria	
	N°	%	N°	%	N°	%
Residential	788	46%	204	75%	8	4%
Mixed Use (Common Property)	213	12%	14	5%	119	57%
Residential + Mixed Use	1,001	58%	218	80%	127	57%
Commercial	303	18%	27	10%	34	16%
Commercial + Mixed Use	516	30%	41	15%	153	73%
Offices	143	8%	15	6%	26	12%
Other Uses	279		12		23	
Total Properties	1,726		272		210	

Table 4. Comparison of the number of lots by land use and the percentage that represents each one compared to the total lots of each HZ. Source: Preparation by the authors.

distribution within the HZ, with a slight increase at the edges near Ñuble and Matta streets.

In summary, the Lastarria HZ, despite having a lower percentage of properties with residential uses, has housing densities much higher than those observed in the other two HZs.

Analysis of the population variation in the period 2002-2017

In short, when reviewing the population variation in the three neighborhoods, it is observed that their growth was lower than that of the municipality of Santiago between 2002 and 2017. Only the Yungay neighborhood comes close to communal growth. In contrast, Matta Viel has much lower growth, and the Lastarria Neighborhood has a significant population decrease.

Cross-data analysis

The analysis shows a great diversity in terms of current land uses. The Matta Viel neighborhood is distinguished by being the only one with an important match between the citizen origin of the declaration and the predominant residential land uses (Table 4). On the other hand, the Yungay Neighborhood HZ has a 'mixed' character, given that although exclusively residential use

continues to be predominant, less than 50% of the properties are. Thus, just by adding the mixed-use properties, residential use rises slightly above 50%, reaching 58% of the lots.

The Lastarria neighborhood is markedly in contrast with the Matta-Viel and Yungay neighborhoods. In this case, we see that there are practically no lots for exclusively residential use; this is how, although this use is present, it occurs mainly on the upper floors in properties with a first commercial floor. Thus if the exclusively commercial use is added to the mixed-use, the commercial lots total reaches 73% of the neighborhood. In summary, regarding the uses, it is a mainly commercial neighborhood of a bohemian character, with restaurants and other tourist and cultural uses.

On the other hand, it is seen that the Lastarria HZ also has the highest population density (Table 2). To understand this apparent paradox, it is relevant to incorporate the consideration of the constructed typology into the analysis. In the case of the Lastarria Neighborhood, it is composed of multi-story heritage buildings that, even when they change to residential use on the 1st and 2nd floors, it could be said that they "enable" the permanence of residential use on the upper floors. In contrast, in the Yungay and Matta-Viel neighborhoods, single-family homes

with one or two stories are the predominant built typology. By changing the land use at the levels closest to the street level, there is no possibility of maintaining residential use. These results suggest that this has been the built typology, together with the HZ regulations that prevent demolition, that has made it possible to maintain the condition of the Lastarria Neighborhood as a place to live. In the same way, it could be deduced that the predominantly low-rise typology, together with the impossibility of demolishing, has made it challenging to maintain residential uses in the case of Yungay, where commercial uses have displaced them.

In summary, when reviewing the land use change data with the population data, the following is seen: The Matta Viel Neighborhood maintains the housing use, but loses population compared to other neighborhoods of Santiago. Although the Yungay Neighborhood loses housing land use in favor of mixed and commercial uses, of the three neighborhoods, it is the only one that maintains a population growth similar to the rest of the commune. Finally, the Lastarria Neighborhood loses housing use in favor of mixed and commercial uses and loses its residential population.

V. DISCUSSION

The cases studied are a type of neighborhood located in urban centers. While one of them (Barrio Lastarria) is an example of a State-promoted HZ, the other two are examples in which community organizations have promoted their designation as an HZ as a mechanism to “protect the neighborhoods” (Leal-Yáñez & Inzulza-Contardo, 2018).

In line with what has been pointed out in the theoretical framework on the effect of tourist/heritage value on the incorporation of commercial uses (Carrión, 2005; Hiernaux & González, 2014; Navarro, 2016; and Cabrera-Jara, 2019), the results show that in all three cases, there is a loss of residential land use in favor of commercial or mixed-use.

On the other hand, the scope of this change is very varied, being much more relevant in the Lastarria Neighborhood, which is the most central of the three cases analyzed. These results suggest that the HZ instrument alone is not a determining factor in the degree of residential use loss and that its effect is much more relevant in HZs of high centrality with respect to the commune and the main roads. Finally, the displacement of residents due to land use changes is only clearly evident in the case of the Lastarria Neighborhood, the only one that lost population from 2002-2017. However, it is important to emphasize that although the other two HZs do not lose inhabitants, they have lower demographic growth than the communal average. It is also relevant to point out that

the gap varies significantly between one HZ and another, with this phenomenon being much more important in Matta Viel than in the case of Yungay.

These results coincide with those pointed out by Ettinger (2019) in that there would be no direct causal relationship between heritage policies and depopulation, and the latter would be due to a multiplicity of causes.

VI. CONCLUSIONS

The results provide important nuances about how the phenomenon of tourism development unfolds in the HZs and its impact on the residential character of the neighborhoods. The results suggest that the sectors most threatened by suffering processes that displace the inhabitants are those where the situation of heritage neighborhoods is accompanied by high centrality and proximity to main roads or mass transport infrastructures, among other things.

Based on these results, future research should look closer at the analysis of the combined effect of the HZ instrument with the variables indicated below. Firstly, the impact of the original typology and, in particular, the potential of medium-rise buildings to preserve the residential content of heritage neighborhoods. Secondly, the impact of the greater or lesser centrality and accessibility of neighborhoods in this respect.

The results suggest that HZs, although powerful tools for conserving the built fabric, should also be flexible enough to adapt to contemporary challenges, such as touristification or obsolescence, without compromising community vitality. In this sense, it is vital to develop more integrated strategies that allow for differentiated zoning according to the particular characteristics of each neighborhood. This includes implementing management models that actively involve local communities in decision-making on land use and investments, ensuring that the designation of HZ is not a barrier to development but an opportunity to create a sustainable balance between heritage, neighborhood identity, and economic growth.

VIII. CONTRIBUTION OF AUTHORS CREDIT

Conceptualization, M.L.Y.; Data curation, M.L.Y.; Formal analysis, M.L.Y.; Obtaining financing, M.L.Y.; Research, M.L.Y.; Methodology, M.L.Y.; Project management, M.L.Y.; Resources, M.L.Y.; Software, M.L.Y.; Supervision, M.L.M.; Validation, M.L.M.; Visualization, M.L.Y.; Writing – original draft, M.L.Y.; Writing, review and edition, M.L.M.

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