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Spatializing gentrification *in situ*: A critical cartography of resident perceptions of neighbourhood change in Vallcarca, Barcelona

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ABSTRACT

In this paper, we link the tools of critical cartography and cognitive mapping with more traditional gentrification studies in order to capture *in situ* the shifts associated with nascent processes of change in bodies, environment, and minds in Vallcarca, a liminal gentrifying neighbourhood of Barcelona, Spain. We ask: How do the simultaneous and conflicting ways that people shape, perceive, and respond to gentrification processes affect how space and place are politicized within global urbanization processes? We build our maps through an analysis based primarily on listening to a diverse range of residents and constructing with them a combined cartography of the perceived type, degree, and location of changes in the neighbourhood. The results reveal an important dual role for greening and tourism, a differential geography of perceived gentrification risk across different social groups, and a limited reach in terms of who perceives gentrification. These results have important implications for how space and place are politicized and de-politicized and offer guidance useful to grassroots efforts to combat gentrification and displacement.

1. Introduction

Gentrification involves a shift toward a more elite status in the bodies, environment, and minds of people living in a neighbourhood, but efforts to measure the process struggle to express the simultaneous occurrence of these shifts. Normally, studies analyze the demographic turnover of certain types of people (bodies); the upgrading of homes, businesses, and public spaces (environment); or the perceptions and contestations among residents (minds). However, even when mixed-methods approaches present these shifts in parallel, the simultaneity and interwoven nature of the physical, environmental, and mental aspects of gentrification is difficult to retain and, as a result, some of the possibilities for politicizing space within the emergent process of defining place are diminished (Massey, 1992).

The challenges in fully grasping the juxtaposed ways that people shape, perceive, and respond to neighbourhoods as they transform toward a more elite status are especially acute in the "frontiers" of citywide gentrification waves (Lees & Ferreri, 2016). In these liminal neighbourhoods where demographic and environmental changes are nascent and the ultimate effects unsure, residents and policymakers actively form competing and conflicting perceptions of the dynamics on the ground. Especially in cities that are targets of global capital investment and attractors of new advanced service economy jobs, this liminal stage in a neighbourhood's shift toward gentrification can be short-lived in the face of fast-moving real estate markets, and thus difficult to capture with traditional methods that seek *ex post facto* understanding of events. These are also areas at a stage where effective resistance is the most crucial for vulnerable residents – these are the actual sites where planetary urbanization processes produce profound changes and are thus pressure points for politicizing the city (Dikeç & Swyngedouw, 2017). So, a lot is at stake in terms of making sense, spatializing and politicizing ongoing gentrification processes and the production of disputed spaces and places *as it happens*.

How do the simultaneous and conflicting ways that people shape, perceive and respond to shifts as they emerge on the frontier of an expanding citywide gentrification process shape the ways that space and place are politicized within global urbanization processes? In other words, how do people make sense of ongoing dynamics of urban

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transformation as both products of capitalist processes of real estate development and as potential sites to enact transformative and emancipatory struggles? In this paper, we offer a methodological and theoretical contribution to efforts to account for the manifold, subjective, and conflicting ways that people take part in, perceive, and respond to gentrification all at the same time as their local environment changes.

Methodologically, we link the tools of critical cartography and cognitive mapping with more traditional gentrification studies in order to capture *in situ* the shifts associated with nascent processes of change in bodies, environment, and minds in Vallcarca, a liminal gentrifying neighbourhood of Barcelona, Spain. We contribute to the existing international literature on the politics of gentrification by mapping the juxtaposed simultaneity of conflicting socio-spatial processes in Vallcarca. We build our maps through an analysis based primarily on listening to a diverse range of residents and constructing with them a combined cartography of the perceived type, degree, and location of changes in the neighbourhood. We translate their voices into a spatial expression of the juxtaposed dimensions of the gentrification fight going on around them.

In the end, this study embraces the complexity of sustained counter-institutional politics focused on place that seek to stop the spread of gentrification. Our mapping approach provides alternative viewpoints to traditional gentrification studies that use state-sanctioned data (Kitchin & Dodge, 2007), qualitative interviews (Slater & Anderson, 2012; Wacquant et al., 2014), and citywide surveys (Gibbons, Barton, & Reling, 2019; Sullivan, 2007). In a nutshell, our study provides tools to further explore gentrification, not as a linear process of urbanization that occurred, but rather as a contested and manifold process that is occurring. In doing so, our study sheds light on the diverse contested spatialities (and temporalities) of gentrification and the struggles to counteract it. These contested spatialities, we argue, are the raw material for efforts to politicize space.

In the next section, we provide a conceptual framework for our approach that links gentrification studies with critical cartography, cognitive mapping, and risk analyses. Then, we introduce our case of the Vallcarca neighbourhood in the context of recent transformations in Barcelona before providing a more in-depth discussion of our methods. Finally, we present our findings on the fine-scale geography of perceptions of *in situ* gentrification in Vallcarca and conclude with a discussion of the meaning of these findings relative to ongoing gentrification studies.

1.1. Theory

While early interpretations saw gentrification as a 'back to the city' movement of a suburban middle-class that wanted proximity to jobs and cultural infrastructure (Atkinson & Bridge, 2008) – a definition based on the neoclassical economic theory of demand and supply – in 1979, Neil Smith brought a Marxist perspective to the debate. Smith refused arguments based solely on cultural aspects and claimed that gentrification is a structural process in which capital accumulation drives spatial changes in the city due to a rent gap, which is defined as "the disparity between the potential ground rent level and the actual ground rent capitalized under the present land use" (Smith, 2005/1996, p. 67). In order to produce a rent gap, the most common route is capital devaluation – decades of decay, for example, followed by urban redevelopment and expansion (Smith, 2005/1996). A rent gap can also be produced when an area's land regulation changes (Smith, 2005/1996), or by the affluence of adjacent urban districts (Lees et al., 2016).

Importantly for the politics of resistance to gentrification, the rent gap theory highlights the diverse roles of builders, developers, landlords, mortgage lenders, government agencies, real estate agents, and tenants. The multiplicity of actors turns each gentrification case into a complex web of interests, making it necessary to take into account historical issues and the mechanisms of capital depreciation in the specific neighbourhood (Smith, 1979). Within this complex web, there is a central role for the state. This is especially the case since the 1990s when gentrification became an overt strategy for city governments interested in revitalizing traditionally marginalized neighbourhoods – often in collusion with private capital and investors (Anguelovski et al., 2017; Hackworth & Smith, 2001; Lees et al., 2016). Even grassroots initiatives to improve neighbourhoods may unintentionally reinforce gentrification processes (Håkansson, 2018). In any case, the consequence when no controls are in place is an increase in land values leading to the displacement of low-income residents.

These discussions focused on definitions and the actors involved have led to two broad approaches for measuring gentrification with some efforts to mix both. First, general quantitative approaches to understanding gentrification employ a set of socioeconomic and real estate indicators – including income, ethnicity, race, education, occupational and tenure status, age, and housing/rental prices (Glick, 2008; Hammel & Wyly, 1996; Lin & Chung, 2017). An increase through time in median income, formal education, white residents, housing values, rental prices and capital investment and decreases in poor and less formally educated residents are indicators broadly correlated to processes of gentrification (Atkinson, 2000; Freeman & Braconi, 2004). Some recent studies have pushed these quantitative approaches toward identifying processes in real-time through the use of new types of data such as Google Street View for analysing the changing appearance of properties (Ilic et al., 2019), or new cartographic and statistical techniques for predicting the future emergence of gentrification (Raevskikh, 2018).

Second, qualitative approaches focus on the social-political dynamics around land use decision-making and neighbourhood relations that produce 'territorial stigmatization' and subsequent processes of gentrification (Slater & Anderson, 2012; Wacquant et al., 2014; August, 2016; Rigolon & Németh, 2018). These approaches are generally focused on the politics of resistance, non-resistance, or policymaking. Other qualitative approaches are opening up the study of "emotional, affective, and experiential geographies of gentrification" (Linz, 2017, p. 138). Less commonly, mixed methods approaches combine quantitative measures of change over time with on-the-ground qualitative data (Hwang & Sampson, 2014; Özdemir & Selçuk, 2017) that expresses the complex social dynamics at play. Even mixed-methods studies, though, retain the retrospective limitations of *ex post facto* research designs.

The focus in most quantitative, qualitative, and mixed methods studies is generally on identifying a predominant trend in one aspect of the shifts that are occurring (*e.g.* resistance, demographics). This focus means that most gentrification studies do not easily account for the manifold, subjective, and conflicting ways that people take part in, perceive, and respond to gentrification all at the same time as their local environment changes. In other words, simplification to a singular trend can reduce the geographic analytic lens to a linear cartographic snapshot or, worse, a territorial boundary for otherwise non-geographic inquiries. A method that fully leverages the geographic lens within gentrification studies would continually resurface the multiple and conflicting movements among people and their environment as they occur in the same space. It would uncover the multiple trends that shape the messy *in situ* process of gentrification and would, thus, provide a richer base for understanding the process of politicizing space.

This is not to say that urban gentrification scholarship is either apolitical or non-spatial. Quite the contrary, Smith (2005/1996) ushered in a particularly spatial and political turn, and numerous studies since then have explored the various dimensions of gentrification in order to expose (and politicize) the process. For example, a long tradition of using administrative data to map demographic and real estate shifts has supported claims of injustice by social movements and driven policy initiatives to intervene (*e.g.* the Urban Displacement Project at the University of California, Berkeley: www.urbandisplacement.org). As well, qualitative field methods including interviews, observations, and surveys have been employed to understand contestations on the ground by engaging with the actors involved (Gibbons et al., 2019; Roy,

2015; Sullivan, 2007). However, it is particularly because gentrification research is political and spatial that we see it as engaged in an ongoing but incomplete struggle to fully express the radical simultaneity of shifts in perceptions, environments, and bodies. The tendency to pull out one predominant trend is still there. This reflects a longstanding conflict between the more limited efforts to examine the politics of decision-making and the more expansive effort to grasp the full process of politicizing space (Dikeç & Swyngedouw, 2017).

The field of critical cartography is concerned with a similar struggle and emphasizes why dynamic approaches to understanding *in situ* gentrification are needed. Critical cartography combines the technologies of mapping that increasingly allow for wider and more creative access to the tools of cartography with a critical perspective on the politics of space and place (Crampton & Krygier, 2006). It seeks to use maps and map-making as an active intervention for furthering the agenda of spatial justice (Dalton & Mason-Deese, 2012), embracing maps as a tool for shaping the constant and ongoing process of re-territorialization, wherein different social groups and individuals seek to express cultural and political power through space (Kitchin & Dodge, 2007). Critical cartographic approaches do not necessarily resolve typical problems of democratic participation (Kim, 2015) but do allow human geographers to build interactive and bottom-up ways of knowing about space and place (Elwood, 2010). Thus, we leverage the tools provided in critical cartography to help more fully realize the goals of gentrification research.

The critical cartography perspective demonstrates that the ways we map gentrification shape the ways we understand the phenomenon. Thus, if we always map gentrification with a goal toward identifying a dominant trend in a (often) retrospective manner, it is represented (and communicated) most strongly as a linear product of urbanization that *occurred* rather than a contested and manifold process that *is occurring*. From the critical cartography perspective, method and theory are interlocked and limitations to understanding the full process of politicizing space can be overcome through empirical analysis that leverages new technologies of cartography capable of generating the data needed to understand ongoing conflicting trends within gentrification. For example, the Anti-Eviction Mapping Project in San Francisco, California (USA) (www.antievictionmap.com), employs interactive mapping tools and oral history to create a spatial representation of the places of resistance, displacement, and destruction associated with gentrification in San Francisco (Maharawal & McElroy, 2018). It responds to the demand to see gentrification as occurring across a wide geography in real time with many dimensions. In the representations of gentrification used in the anti-eviction maps, none of the results are complete – everything is meant to display urban space and place in flux.

This critical cartographic approach provides a new framework for documenting gentrification as it happens. Crucially, leveraging critical cartographic tools such as crowd-sourced and bottom-up mapping removes the boundary between mapper and mapped and thus demolishes any presumption of "normality" that an external data source might impose on the spatial configuration under study. This is an essential first step toward removing the veil placed over gentrification by gentrifiers, developers, and those who benefit. For these actors, the changes are "normal" and this presumption of normality can be imposed on existing residents (Harley, 1989). By asking those experiencing the process to examine it as a "mapper" of their place, it is possible to uncover new dimensions of meanings and to highlight previously unseen impacts of the changes occurring in a place by juxtaposing numerous perspectives (Chambers, 2006). As well, a critical cartographic approach to measurement of gentrification processes provides a new way of seeing the process of politicizing space by visualizing multiple narratives on whether and which areas are being gentrified (Pearce, 2008). From this multi-perspective visualization, it can be understood which narratives map more closely with official policies and, thus, which have more institutionalized power.

Meanwhile, other areas of research complement this effort by expanding the tools for creating data that views gentrification as always occurring across manifold dimensions, not as an end product with a dominant trend to be identified. A nascent set of researchers have begun to show that spatially explicit surveys of resident perceptions can provide effective data for informing our understanding of conflicting landscape values and attributes (Brown, 2004; Langemeyer et al., 2015). As well, geographic information systems and new online mapping tools have reinvigorated a longstanding line of research on urban cognitive and mental mapping (Elwood, 2010; Lynch, 1960), examining people's cognitive spatial reference of areas they inhabit to understand how urban space shapes identity and provides different functionalities for different social groups. Finally, some researchers build on (environmental) risk analysis frameworks to inform gentrification studies. For example, Pearsall (2010) uses an analytical vulnerability approach in order to understand which populations might be vulnerable to gentrification as a result of new brownfield redevelopments. In all, combining the theoretical and methodological concerns of existing gentrification research with those of critical cartography, landscape values, mental mapping, and risk yields a step forward in the struggle to spatialize the radical simultaneity of *in situ* gentrification. As a result, it opens a new pathway; one which we explore through our case of the Vallcarca neighbourhood in Barcelona.

1.2. Case study: Vallcarca, Barcelona, Spain

Barcelona's urban development in the past three decades is marked by the Barcelona Model, a policy for city regeneration that started in the late 1980s and was intensified in the 1990s with a series of municipality-led rehabilitation plans targeting historically deprived areas, combining top-down policy, strategic urban planning, and citizen-centred urban interventions in cooperation with the private sector (Arbaci & Tapada-Berteli, 2012; García-Ramon & Albet, 2000; Marshall, 2004; McNeill, 1999). The 1992 Olympic Games furthered urban transformation in Barcelona, opening up the possibility to develop large-scale urban transformations, with the collaboration of the private sector (Barber & Pareja Eastaway, 2010; Casellas, 2011; García-Ramon & Albet, 2000). From the 2000s onwards, and against the backdrop of global competition between cities to attract investments, the Barcelona Model was itself transformed embracing the "knowledge-based economy" and "creative city paradigm" and pursuing more entrepreneurial strategies (Charnock & Ribera-Fumaz, 2011; Martí-Costa & Pradel i Miquel, 2012), progressively abandoning the initial essence of the model. In 2011, under a liberal government (after over 20 socialist governments), Barcelona energetically embraced the smart city paradigm (March & Ribera-Fumaz, 2016).

All those urban strategies have been used to situate Barcelona in the competitive global arena, with tourist-oriented urban transformation in the city centre and the conversion of former industrial areas into new residential and knowledge economy districts such as the 22@ project (see for instance Charnock & Ribera-Fumaz, 2011 or Martí-Costa & Pradel i Miquel, 2012). The down-side of this apparent story of urban success, as observed by scholars critical of the Barcelona Model, includes social effects related to speculation and gentrification (Delgado, 2017/2007), with big families and large developers dominating the land market (Montaner, 2011).

The scholarship about gentrification in Barcelona has specifically focused on the old town and the 22@ District in order to analyze the Barcelona model and the politics of transformation to a tourist-oriented global city. Studies in Ciutat Vella (Old City) have analysed retail transformations (Pascual-Molinas & Ribera-Fumaz, 2009), culture as a tool for gentrification (Rius Ulldemolins, 2014), resident substitution (Arbaci & Tapada-Berteli, 2012), and the impact of tourism and holiday rentals (Colomb & Novy, 2017; Gant, 2016). Studies about 22@ include the analysis of the government plans and the role of the state in gentrification (Casellas, Dot, & Pallares-Barbera, 2008; Guillamón, 2003), the power of finance capital over the urbanization process (Charnock

Fig. 1. Casc Antic (in black), the affected area by the PGM in 1976; the red line shows the area included in the 2002 MPGM. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)
Source: 2002 MPGM.

et al., 2017), and the creation of cultural districts and productive gentrification (Dot et al., 2010; Pallares-Barbera et al., 2012). Recent literature also examines gentrification related to the creation of green spaces (Anguelovski et al., 2017).

Neighbourhoods outside Barcelona's city centre, however, are rarely the focus of gentrification research. In this paper, we focus on Vallcarca, a neighbourhood in the north of Barcelona, that has faced urban redevelopment plans not fully concretized in the last 40 years, leading to a physical decay of its Old Center (Casc Antic) with speculation and demolitions, and imminent renewal construction. Existing studies about Vallcarca are mostly focused on social resilience and community organization (Betancourt, 2014; Joue, 2015), or on social movements and physical transformation through an ethnographic lens (Stanchieri, 2015).

1.3. Recent urban transformation in Vallcarca, Barcelona

To better understand the current context of Vallcarca it is important to see the outcomes of today as the result of a process that began in 1976, when a Metropolitan General Plan (known by its Catalan acronym PGM) envisaged the redevelopment of part of Vallcarca. In the PGM, a portion of the houses and buildings in its historic center (Casc Antic) (Fig. 1) were forbidden to renovate, including fixing structural issues and façades (Stanchieri, 2015). The project intended to demolish the Casc Antic in order to build a rapid transportation road. This led to the built environment's physical decay, an exodus of residents, and subsequent land devaluation, marking the beginning of a period of rent gap production (Smith, 2005/1996).

The road was never built, but housing degradation and the prohibition of renovation persisted. In 2002, the Municipality launched a Modification to the Metropolitan General Plan (MPGM) that converted the proposed rapid transit road into a boulevard and a greenway (Fig. 2). The modified plan sought to demolish more houses and buildings than the original, extending to three new blocks along Avinguda Vallcarca, the major road leading into Vallcarca's Casc Antic (MPGM, 2002). By 2002, the houses in the Casc Antic were already devalued due to the affected status. Within this context, the proposed renovation triggered speculation and drew investors seeking the allowance to increase building height limits. Many private houses were bought by a public-private company set up to enable redevelopment and by private real estate developers led by one of the largest investors in Barcelona, Nuñez y Navarro (NyN). As of the early 2010's, NyN owns 80% of the private vacant plots in Vallcarca's Casc Antic (Betancourt, 2014).

As the vast scale of investor-led purchases became clear, some of the existing residents, including squatters,[1] joined forces to stop a wave of evictions brought on by investors seeking to capture the value that the redevelopment plans created (Stanchieri, 2015). Although resident mobilizations did not impede continuous demolitions in the Casc Antic, the spirit of the struggle led to the creation of a new organization, the Assemblea de Vallcarca [Assembly of Vallcarca] in 2012. This organization joined together existing feminist collectives and social and cooperative housing activists, among others, to contest the process of gentrification. The Assemblea received technical advice from the Col·lectiu Volta, a collective of architects based in the neighbourhood and from Arquitectes Sense Fronteres [Architects Without Borders] as well as the Union International des Architectes (UIA) [International Union of Architects]. The provision of architectural/urban planning knowledge opened possibilities for a formal contestation of the 2002 MPGM (Carregades de Raons, 2016) and for a grassroots participatory process that set the basis for an international public competition to select a project to be built on the biggest vacant area in the Casc Antic, formed mainly by public land. As well, they transformed some of the vacant lots into temporary public spaces, including a square [Farigola Square], an orchard and a plot to walk dogs. Assemblea de Vallcarca, however, is still struggling to avoid speculation on the remaining plots of the Casc Antic – mainly private ones – not included in the public contest.

Recent transformation in the neighbourhood is also a product of its location: two major tourist attractions border Vallcarca. On the north-Eastern frontier, there is Gaudí's Park Güell, receiving 2.9 million visitors per year. Toward the South-east, there is Vila de Gràcia, a bohemian cultural neighbourhood that attracts visitors with its traditional houses, bars, restaurants, and local festivals.

[1] The squat movement (*okupa*, in Spanish and Catalan) grew in the neighbourhood: in early 2000, Vallcarca was the neighbourhood with second largest number of squatted houses in Europe (Romero, 2016).

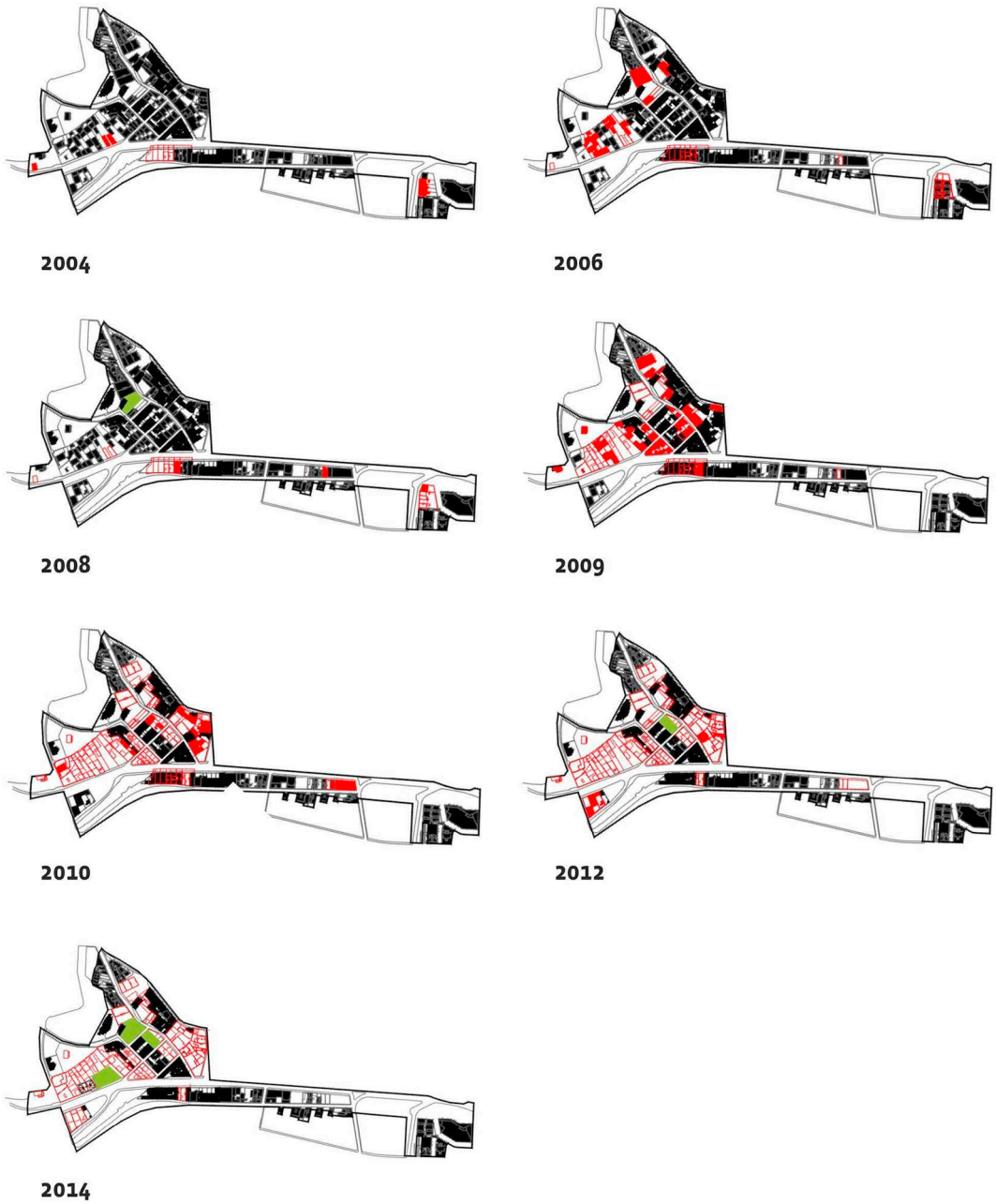

Fig. 2. A 2004–2014 study of the 2002 MPGM affected area, with the demolitions that took place showed in red. In green, are the vacant lots appropriated by residents. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)
Source: Carregades de Raons, 2016.

In terms of economic and demographic indicators, Vallcarca faced a 32.7% rise in the average rental price from 2014 to 2017,[2] followed by a 40% rise in new rental contracts from 2014 to 2017, showing a high rate of resident turnover. The family income in Vallcarca in relation to Barcelona on the whole also changed from 101.6 to 112.9[3] percent of the city median income between 2014 and 2016. The number of foreigners living in the neighbourhood decreased from 2010 to 2016 (13.4% to 12.7%)[4] and the nationalities represented have changed: in 2010, the main foreign nationalities were Italians, Bolivians and Colombians; while in 2016, it was Italians, French and British – a shift from Global South to Global North countries.[5] Vallcarca had 15,591 inhabitants in 2017, a slight increase compared to 2010 (15,459). This population data is a valuable way to understand the macro-scale shifts and to measure the extent to which those considered "other" within a city are displaced by real estate trends (Anguelovski et al., 2017), but only offers a glimpse of the processes underway in Vallcarca.

[2] Data analysed from Barcelona Estadística: http://www.bcn.cat/estadistica/catala/dades/barris/timm/ipreus/habllo/index.htm.

[3] The medium family income in Barcelona is represented by the Index 100, and neighbourhoods' data are calculated in relation with the 100. Source: Territorial distribution of family's income in Barcelona 2000–2016 (Distribució territorial de la renda familiar a Barcelona. 2000–2016).

[4] Barcelona Estadística. Available at: http://www.bcn.cat/estadistica/catala/documents/barris/28_GR_Vallcarca_2017.pdf.

[5] Ibidem.

2. Material and methods

A combination of data collection methods was applied to meet the objectives of this research. Participant observation was carried out to assess current responses to speculation, growth of tourism, rise in rents, and physical transformation. From November 2017 until May 2018, the first author of the paper engaged in the regular weekly meetings of the Assemblea de Vallcarca, and took part in its Urbanism Committee. Following the qualitative analytic tradition of gentrification studies, field notes taken during this participation served as a data point for structuring our understanding of the key issues for participatory mapping tools to address; and the diversity of actors/stakeholders that should take part as respondents. The meetings at the Assemblea normally focused on how to tackle speculation in the neighbourhood, including alternative urban plans for some areas (contesting, for example, the official plan for transforming Avinguda Vallcarca into a greenway that would expel more residents), or elaborating proposals for social rents in new urban development in the empty plots (public and private ones). Participating in the meetings was an important way to understand how the main resistance group in Vallcarca understood and strategized to fight gentrification, and how they were talking to other residents and with officials.

Building on the access and knowledge gained through participant observation, we created a participatory mapping tool, formed from responses to a structured interview protocol that included a map of the neighbourhood, and a combination of quantitative and qualitative open-ended questions. At the same time, the interview questions were designed to express variables common to previous quantitative studies (Galster & Peacock, 1986; Pearsall, 2010; Bates, 2013; Anguelovski et al., 2017) in order to build an understanding of common gentrification issues. The aim was to be able to spatialize a diversity of gentrification variables from the typical income, age, race and ethnicity, and housing value trends to the less typical trends around opening of new businesses, tourism, and effect of proximity with a high-income area. In doing so, we sought to find out the simultaneous drivers or effects of the gentrification process and to identify where perceptions conflicted.

The quantitative questions dealt with the demographic/residential status of the interviewees and their perceptions of gentrification in the area, directly asking them if they think the area is currently affected by gentrification and to what extent. The open-ended questions allowed the interviewees to freely express their perspectives and views, as well as their memories of the neighbourhood's transformation, with questions that included how physical changes had impacted them, if they see changes in the residents, commerce, cost of life, and if it had affected them. To avoid potential discomfort with an unfamiliar concept, the word “gentrification” did not appear until question number 18. This approach allowed respondents to focus first on talking about their familiar daily life, rather than trying to understand a potentially foreign concept from the beginning.

Seven of the 25 questions were answered by drawing directly on the map, including where they live, places and areas they like to go and places and areas they don't like to go. Four of the seven were digitized and aggregated in QGIS, a Geographic Information System software. They were: spaces perceived as having experienced strong changes; spaces perceived as currently gentrified or in an advanced stage of gentrification; spaces perceived to be at risk of future gentrification; and spaces perceived as symbols of anti-gentrification. Each shape drawn by the respondent on the paper was transformed into a colored polygon in QGIS. The polygon's color was then visualized with an 80% transparency to allow for overlapping responses to be seen in a density mapping fashion. The stronger the color, the higher the response's coincidence across those who were interviewed.

In all, we carried out 36 structured interviews with residents/business owners in Vallcarca (and 2 with government officials) during March and April 2018. All interviews were anonymous. The interviews lasted an average of 45 min each. The first respondents were met at Assemblea de Vallcarca, and from there a snowball sampling was conducted. We specifically sought and achieved a balance of voices among age, gender, and specific points of view, such as business owners, long-term residents, newer residents, renters, owners and squatters.

Finally, in order to fully contextualize the findings from the maps, semi-structured interviews were conducted with five key informants, selected to be representative of various arenas involved: from government to community representatives. The interviews were intended to gather background information, and supported the development of a broad understanding of the transformations in Vallcarca and how they affected the inhabitants. The semi-structured interviews were conducted from March to May 2018 and included the map used in the structured interviews carried out with residents, allowing data on perception of gentrification by different actors to be added to the maps.

3. Results

Regarding housing tenure, the respondents living in the neighbourhood are renters (52.8%), owners (36.1%) and squatters (11.1%). The sample was almost balanced in terms of gender: 55% are men and 45% women. The respondents' ages range from early 20s to late 80s. They live in a wide range of areas inside the neighbourhood[6] and are residents (75.5%), business owners (17.07%), and government representatives (7.31%). Respondents born in Catalonia were predominant (60%), followed by residents born in the Global South (17.1%), in the rest of Spain (14.2%), and in other countries of the Global North (8.7%). Finally, 31.4% of the respondents have been living in Vallcarca for more than 40 years. Among the 42% that arrived to the neighbourhood in the last 15 years, since the 2002 MPGM, 60% were previously living in other neighbourhoods of Barcelona, and the other 40% moved to Vallcarca from other parts of Spain or abroad.

In the following subsections, we present the residents' perceptions of urban transformation in Vallcarca. We start with their views and feelings on these changes, how they perceive what is happening, and where they perceive it is happening. Then, we present the aggregated gentrification perceptions in the neighbourhood map, including the hotspots of anti-gentrification struggles.

3.1. Residents' perceptions of urban transformation

The large vacant plots in Vallcarca's Casc Antic (Fig. 3), left by the tedious implementation of urban plans and by a community reaction, were the places the respondents traced as the ones that underwent the strongest changes in the neighbourhood in the past 10 years (Fig. 4). They were highlighted most frequently by respondents living in Vallcarca for more than 30 years, but also by the more recent arrivals showing that complex memories are still there, resisting, but at the same time transformed. When talking about the places that underwent the strongest changes, respondents cited Casc Antic street names: “The Casc Antic, the Carrer Farigola.[7] They have nothing to do with what I knew as a child”, declared a 54-year-old resident, that was born in Vallcarca and remembers the changes: “From one day to another not just houses but full streets disappeared. It was as if someone had come and made themselves owners of everything”. The traumatic change in social life was also brought up by a 57-year-old resident that has lived 25 years in Vallcarca: “Before, there were low-rise houses. Today this

[6] Two of the respondents lived in the houses that were demolished in the Casc Antic, and are currently living in a social housing constructed on Avinguda Vallcarca to receive the residents after the expropriation. One of the respondents is still owner and inhabitant of an affected house in the Casc Antic, and four are squatters in houses in the same area.

[7] In English, Farigola Street.

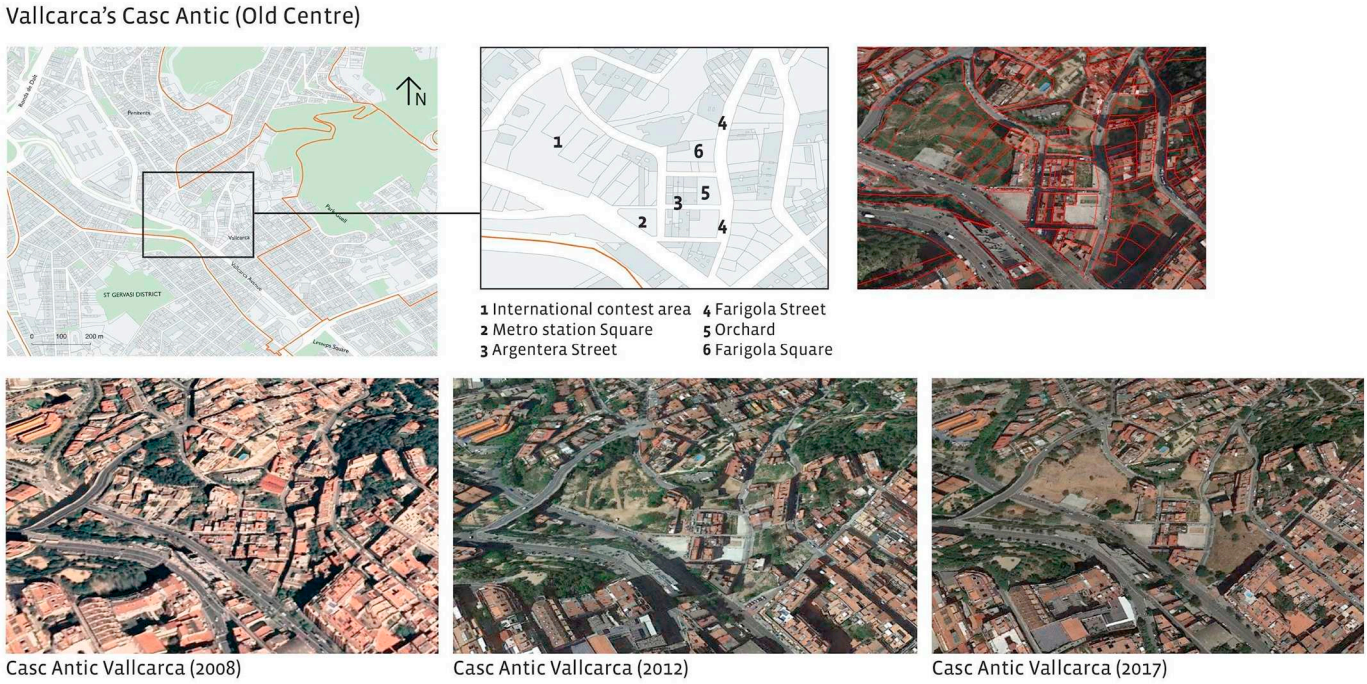

Fig. 3. Vallcarca's Casc Antic and the transformation between 2008 and 2017.
Source: CartoBCN and Google Earth, edits by the authors.

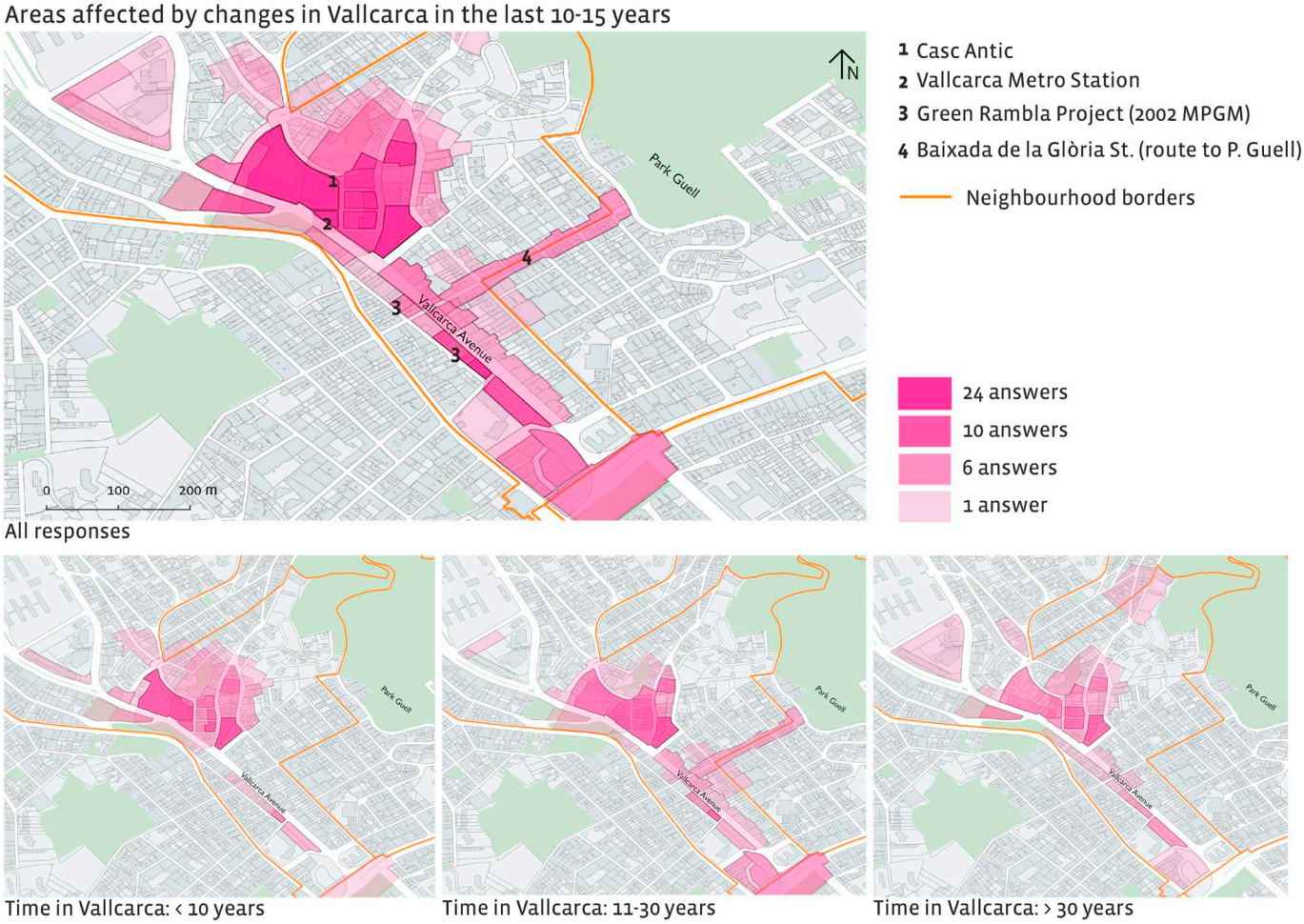

Fig. 4. Map: Areas affected by changes in Vallcarca in the last 10–15 years, according to the respondents.

neighbourhood has a lot of conflicts about how things should be done".

The different meanings the vacant plots have for different residents highlight the phases a process of gentrification can undergo and the simultaneous conflicting perceptions of those phases. When asked about the changes in the neighbourhood, older residents think back to the time when houses were bought and demolished. They see the current empty lots as a form of violence: "Our houses were our memories and they wanted to give us peanuts for us to shut up", claimed a 76-year-old resident, that arrived in Vallcarca at the age of three months. Others resort to memories of the neighbourhood's initial devaluation, seen as still ongoing, especially due to squatting and Roma occupation. An 80-year-old resident who has lived 60 years in the neighbourhood stated: "I do not like to go to the old zone because of the Roma's occupation. They just make it dirty". A 60-year-old resident continues: "It is dismal. Besides being ugly, it's dangerous". A squatter resident directly relates the changes with a process of speculation: "They left the neighbourhood degraded, without the places where people knew each other. All because of greed", while another squatter advances a gentrification-related concern with new potential construction: "What kind of housing it will be, for what income level?"

Some new arrivals, on the other hand, see in the vacant lots an opportunity to build new memories. They disrupt the transformation from speculation and reclaim the lots for the community. A 27-year-old squatter remembers: "I did not experience the demolitions. But in the end the vacant lots are a reason for the neighbourhood to get together, people reappropriated the spaces, now we have a more cohesive social fabric". "The changes affected me positively, because it gave me possibilities to occupy the new public space, for example having my wedding in the Farigola Square", said a 25-year-old resident. A just arrived resident stated: "I have never lived in Barcelona in this way, surrounded by vacant lots. Aesthetically they are ugly, but life in them is beautiful". These perspectives are from people engaged with the social network that advocates for the social use of the plots, but there is also a foreigner's view who started using the plots especially to walk their dog: "The vacant lots were closed when I first moved. Now they are being used. There's a trail, a bench, a table". A slow process of urban transformation, along with a community organization to avoid speculation, led to the occupation of speculative lands by residents in Vallcarca and a redefinition of their meaning on the part of the residents.

There are two other highlighted changes to note in the maps. The first one is the zone of the proposed greenway, along Vallcarca Avenue, which faced demolitions in early 2010. The second highlighted change is the Carrer Baixada de la Glòria,[8] a street that connects Vallcarca Avenue with Park Güell. The main change in this area is in the commerce.

3.2. Perceived changes in commerce, residents, and rents

Three specific questions were asked about the perceived changes in Vallcarca, related to: i) commerce; ii) socio-demographic/socio-economic status of the residents; and iii) rents paid for a home or for a business/office.

None of the respondents expects having expensive commerce in the area with the subsequent rise in the cost of living in the short-term. However, 80% report a perceived turnover in the type of commerce. There are also two perceptions: one is, again, the violence of the demolition of commerce in the Casc Antic. The second is the turnover of the commerce with the arrival of souvenir shops: "There were carpentries, bars, bookshops, a butcher… Now there are souvenirs, take away cafeterias, kebab. Things thought for tourists, especially on the route from Vallcarca metro station to Park Güell", states a 37-year-old resident. The presence of souvenir shops was noted by almost half (48.5%) of the respondents.

The arrival of new residents is not identified as having affected many respondents, although 68.5% could think of at least one change, the biggest one regards age: more young people are living in Vallcarca today than 10 years ago. Roma, squatters, and foreigners were also cited. Finally, only 25% of the respondents that are renters report a rise in rents in recent years. However, there is fear of future changes, as demonstrated by their responses: "The landlord has already said he will raise the rent, because we started when we were in crisis", explained a 40-year-old business owner. There are stories about refurbished flats rented for double the price of the previous contract. Almost 60% of the respondents that are renters said they see the possibility of moving from the neighbourhood in the case of a rise in rent. The squatters, in turn, do not see a future in the neighbourhood: "If I had to pay rent I could not afford to live in Vallcarca. The squats will probably not be here in five years due to the new constructions", stated a 29-year-old squatter.

3.3. Gentrification: meanings and degree of impact

When asked if they knew what gentrification means, more than half (55.8%) of the resident-respondents answered yes. All the explanations centered around the larger-scale processes of investment in urban space: "To clean with violence"; "An economic model that changes the urban model"; "Speculation"; "Degradation followed by new constructions, substitution of residents for higher-income ones"; "The businesses changing what they offer, with more elitist and expensive products; old residents having to live further away". These responses were from residents between 27- and 76-years-old. Of the respondents who did not know what gentrification means, 26.7% said they had heard of it, but were not sure how to define it.

The next question was about how affected Vallcarca was by gentrification, using four levels: not affected, low, medium and high (Fig. 5). The liminal status of the neighbourhood – in the middle of a period of expropriations and demolitions, and future redevelopment, and on the edge of citywide gentrification processes – is reflected in the disparity between responses. "No" and "High" have similar percentages of answers, both slightly over 25% (26.3% and 28.9% respectively), raising the question about how gentrification is perceived and in what point it can be nameable. In this sense, it is worth highlighting the high expectations on the part of the respondents about the process of gentrification in the future, as they claim: "Medium, but it is going to be High. They are working hard for that. I've seen people taking pictures of buildings and leaving notes behind the doors offering to buy flats", said a 59-year-old resident. "There isn't at first sight. But the vacant plots could lead to something because a lot of people will move here", stated another.

Interestingly, owners had a more prominent perception of current gentrification than renters (Fig. 6). Among the renters that selected "No", however, 40% are foreigners and 25% live in social housing. Among the ones selecting "Low", 50% are foreigners from the Global North. The squatters, who face the threat of eviction daily, answered between Medium and High. The government officials working directly with the district answered High, while the municipal level officials answered Low. When asked about the drivers of gentrification in the neighbourhood in an open-ended question, the vacant lots were cited most frequently (Fig. 6), mainly for two reasons: the evictions and demolitions that already happened on these plots, and the risk of future gentrification with the construction of high-end buildings. The pressure from other parts of Barcelona, and specifically from the neighboring gentrified area of Vila de Gràcia, was also brought up.

3.4. Gentrification mapped: a collective cartography

Three questions were designed to elicit resident perceptions of what the map of gentrification in the neighbourhood looks like: i) What areas do you perceive to be currently affected by gentrification? ii) What

[8] In English, Baixada de la Glòria Street.

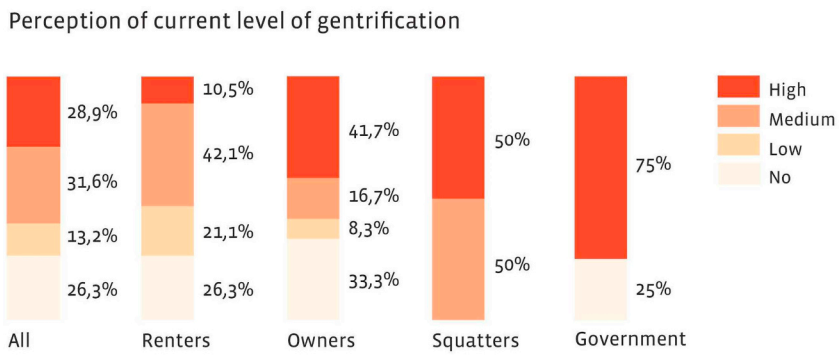

Fig. 5. Level of gentrification in the neighbourhood, according to residents and government.

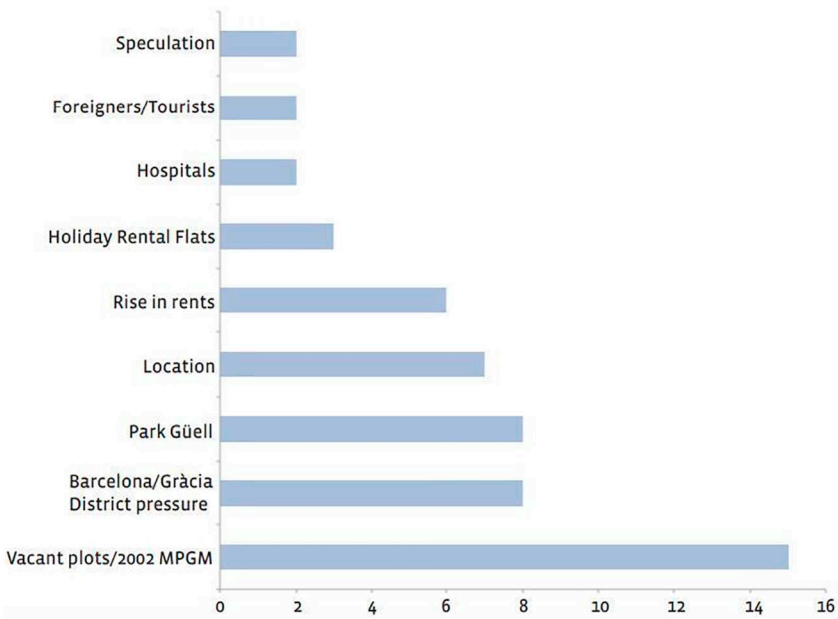

Fig. 6. Drivers of gentrification, according to residents' perception. The number indicates the times the drivers were cited, in an open-ended question.

areas do you perceive to be susceptible to gentrification? iii) Where are the places perceived to be symbolic of anti-gentrification struggles?

i) Areas currently perceived to be affected by gentrification

The colored areas on the map (Fig. 7) show areas perceived to be affected by gentrification, with darker colors indicating greater agreement. The current gentrification process perceived by the respondents is related to the rise in rents, and new higher-income housing areas, including places in which low-rise houses were substituted by mid- or high-rise buildings. It is worth noting that 10 people chose not to point out places currently undergoing gentrification, as they do not perceive gentrification to be happening now in Vallcarca.

The coinciding answers pointed especially to tourism-oriented commerce, as it is visible in the strongly colored route from Vallcarca metro station, along Avinguda Vallcarca, and approaching Park Güell along Carrer Baixada de la Glòria. This route was drawn primarily by renters and squatters. Owners, on the other hand, highlighted the whole area between Avinguda Vallcarca and Park Güell, as one respondent explained: “This zone is less controlled, and entire buildings are being bought”. Some respondents also signalled the Casc Antic, although with fewer overlapping responses. The main reasons to highlight the area, according to the respondents, are related to gentrification's phases: decay, purchase by a speculative real estate, expulsion of residents, demolition and an expectation for what is to come.

ii) Areas perceived to be at risk of gentrification

Differing from the map of the currently gentrifying area, the areas perceived to be susceptible to undergoing gentrification (Fig. 8) show a strong overlap in answers, especially in the Casc Antic and its vacant lots: “The vacant lots in the Casc Antic are empty now, but they will end up doing outrageous things”, said a 58-year-old resident in Vallcarca that has lived in the neighbourhood for 28 years. Another overlapping point is the route from the Metro station to Park Güell, for the reasons explained previously. Interesting to note is that, again, the owners' perception of gentrification is more spread across the neighbourhood, with less overlap. The areas of intersection include some vacant lots, areas near Vila de Gràcia, Avinguda Vallcarca, and the blocks affected by the greenway.

iii) Places perceived to be symbolic of anti-gentrification struggles

The final question asked respondents to identify a place that is symbolic of the anti-gentrification struggle. Almost three quarters of the respondents (73,6%) said they knew places representative of anti-gentrification struggle. The final map shows that the areas at greater risk of

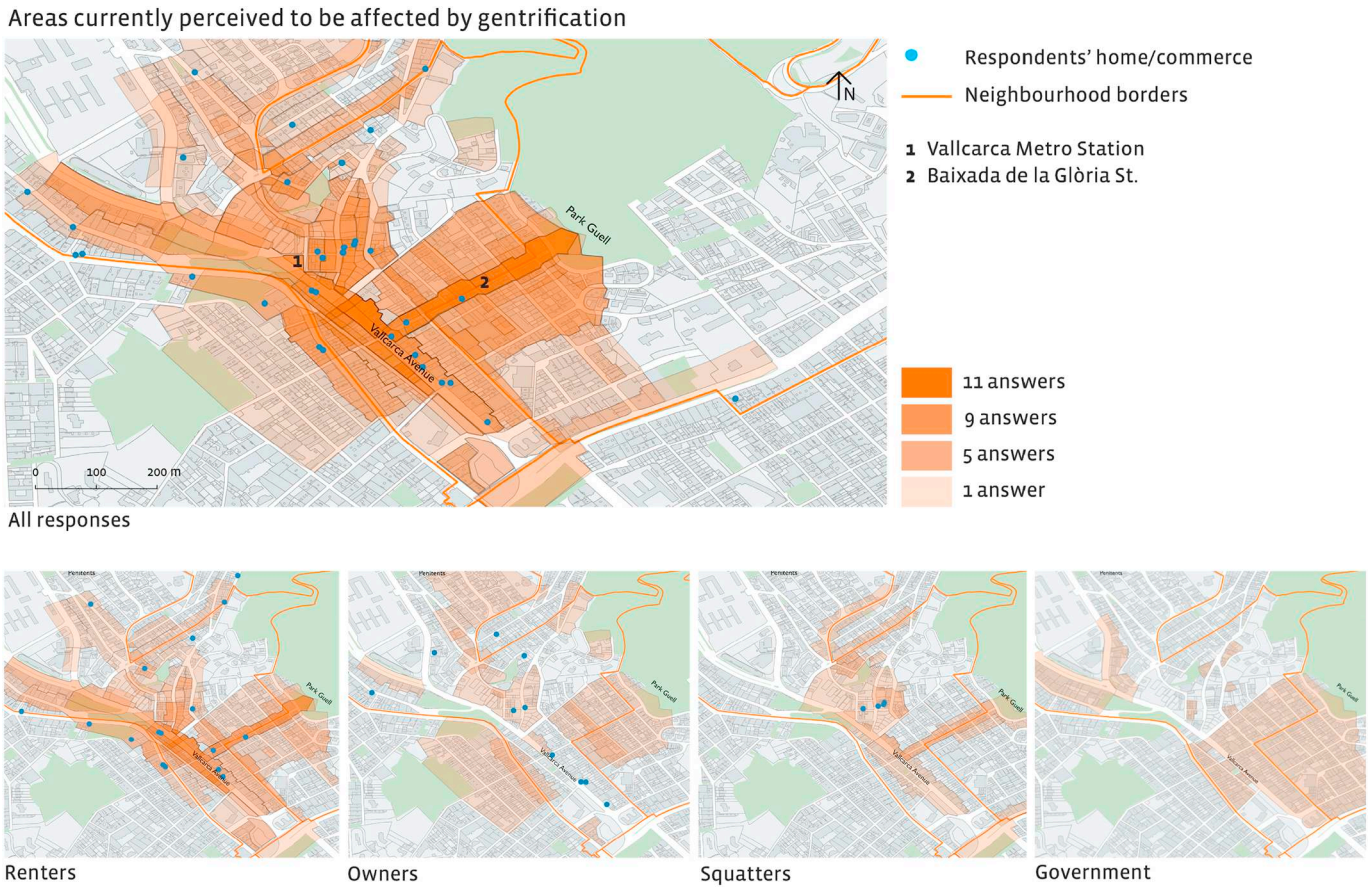

Fig. 7. Map: Areas currently perceived to be affected by gentrification.

gentrification overlap with the areas most symbolic in the struggle against gentrification, according to residents' perception (Fig. 9). The spots most cited were the Fusteria, the only building that survived on the biggest empty plot, and that was transformed into a local informal community gathering space; and the Bodega Riera, a long-standing collective-run bar in the neighbourhood that gathers residents from different ages and is a place of encounter for resistance members. Also, the vacant lots themselves were identified as anti-gentrification spaces due to the oppositional politics that have so far kept new construction at bay. According to a 46-year-old resident in Vallcarca, these are "spaces that could have been gentrified already, but there's a big struggle to avoid it".

Other places cited were the undeveloped lots that have been appropriated by the residents: "Farigola Square, the orchard, and our first occupied plot are anti-gentrification spots", stated a 35-year-old resident. These spaces are actively used and shaped by local residents. The anti-gentrification messages that target the NyN real estate group on Vallcarca's walls were mentioned by another resident, such as a painting of a big bug with the face of the NyN owner and the phrase "Vallcarca is not on sale". Some residents, such as a 34-year-old business owner, recall a certain group when asked about anti-gentrification spaces, highlighting spots where they meet: "There are some people, I call them hippies. They are anti-establishment, have a lot of ideals and make you keep thinking."

Finally, ten respondents (28.57%) could not identify areas symbolic of an anti-gentrification struggle. Among them are two foreigners and the oldest interviewees, people from 62- to 86-years-old. This data shows that the struggle to avoid speculation – and the information about it – is centered in a younger age group, as the cartography reveals that younger respondents are able to point out more places as anti-gentrification symbols.

4. Discussion and conclusion

Empirically, this research aimed to listen to and analyze residents' voices about their perceptions of gentrification, employing the tools of critical cartography, cognitive mapping, and gentrification risk to spatialize the *in situ* process of gentrification in Vallcarca, Barcelona, which is on the frontier of a rapidly expanding citywide gentrification process. It advances the literature by bringing together the perspectives of critical cartography and gentrification studies. In doing so, it shows at once – within one analytic effort – the simultaneous and conflicting perceptions of owners, renters, squatters, developers, policymakers, elderly residents, young residents, foreign residents, native residents, new arrivals, and new businesses. It overlays these perceptions (in people's minds) with information about shifts in the bodies (demographics) and environment (demolitions, new storefronts, new greening). Capturing this simultaneity within changing place provides lessons that can inform the ways that spatial processes are politicized and de-politicized and offer information useful to grassroots efforts to combat gentrification and displacement.

How do the simultaneous and conflicting ways that people shape, perceive, and respond to shifts as they emerge on the frontier of an expanding citywide gentrification process shape the ways that space and place are politicized? Several main issues stand out in the maps generated by residents. First, tourism and greening are central issues with concurrent positive and negative associations. The highlighted route from the metro station to Park Güell, for example, shows the consequences of tourism. The route appears in three maps, marking it as a place seen as dramatically changing in the last 10–15 years, a place of current gentrification, and at risk of gentrifying. The changes reported are mainly related to the growth of tourist-oriented shops. As well, the planned greenway along Vallcarca Avenue and the Casc Antic central

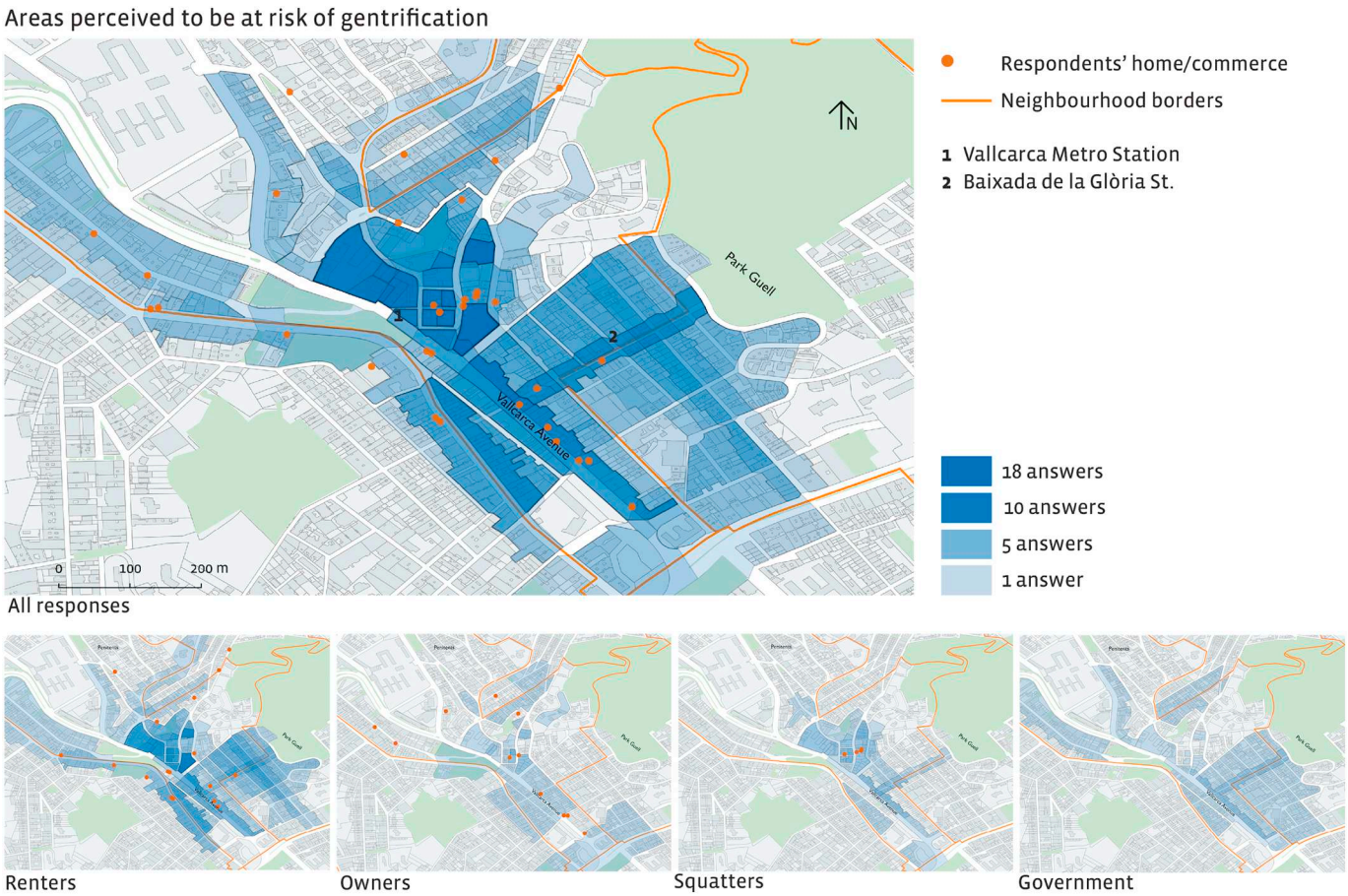

Fig. 8. Map: Areas perceived to be at risk of gentrification.

areas of contestation generate risk of gentrification in the eyes of residents who were most affected by the ongoing demolitions. The undeveloped lots turned into community spaces, though, show that greening has a dual identity – both a tool of investors to upgrade an area and a tool of activists to resist. This complicated role of greening and tourism is generally invisible in most governmental data and especially difficult to understand in a retrospective study, making the critical cartography approach essential.

Demonstrating the dual nature of green space, there is a strong overlap of responses in undeveloped areas where evictions and demolitions have happened in three specific maps: the strongest change in the neighbourhood in the last 10–15 years; the areas at risk of gentrification; and the areas symbolizing anti-gentrification struggles. These three maps reveal how residents perceive the connection between demolition and gentrification, and at the same time how the struggles to avoid further speculation in these areas have given the green spaces a symbolic meaning as spots of resistance. The connection between state-led projects and gentrification is recognized by the residents, and even the vacant public lot that was the focus of an international design contest and where social housing is proposed to be built – *i.e.* theoretically avoiding speculation – is perceived as an area at risk of gentrifying.

Second, the perception of gentrification shows a divergence across social groups. Anti-gentrification struggles are perceived more by younger residents than by those over 60-years-old, showing a need for resistance groups to reframe their communication and engagement with different residents. The difference according to age is also revealed in the way physical changes in the Casc Antic are felt. To those evicted (*i.e.* older residents), the changes still carry the legacy of violence. The new arrivals, on the other hand, see it as an area of opportunity, as some of them transformed the vacant lots for temporary community uses. This finding adds to the critical cartography literature, which seeks to highlight social differences in perception of space, and especially to make those perceptions normally excluded from political processes more visible.

Third, gentrification is not universally perceived. An almost equal number of responses of "No" and "High" as to the level of gentrification in Vallcarca today can be analysed, at first glance, as contradictory. However, it reveals the impact of speculatory behaviour, with a series of interests acting almost invisibly behind the materialities of the city. It also sheds light on the understanding of *in situ* gentrification, raising the question of when gentrification is seen as a process *occurring* rather than an end-product revealed by retrospective analysis. That owners were more inclined to perceive gentrification over a wider area than renters shows that these divergences in perception can structure quite a bit of what types of political activity are possible and needed in a neighbourhood. This finding pushes forward our understanding of gentrification risk as something best viewed through signpost indicators that may differ in each neighbourhood.

In this sense, it is important to highlight the less frequently indicated areas painted on both gentrification maps: in these places, there are no strong demolitions, nor change in commerce, but there is speculation, according to some respondents. The selections are mainly based on rising rents, including stories of whole buildings being bought by foreign and national investors. This is the rent gap formation in action, with properties in a disenfranchised neighbourhood and around a redevelopment plan being purchased cheaply, waiting for the development to take place.

Anti-gentrification activism seems to shape people's perception of gentrification risk. There is a strong overlap between the areas people perceive as at-risk of gentrifying and those they connect with anti-gentrification activism. This is an important finding for anti-

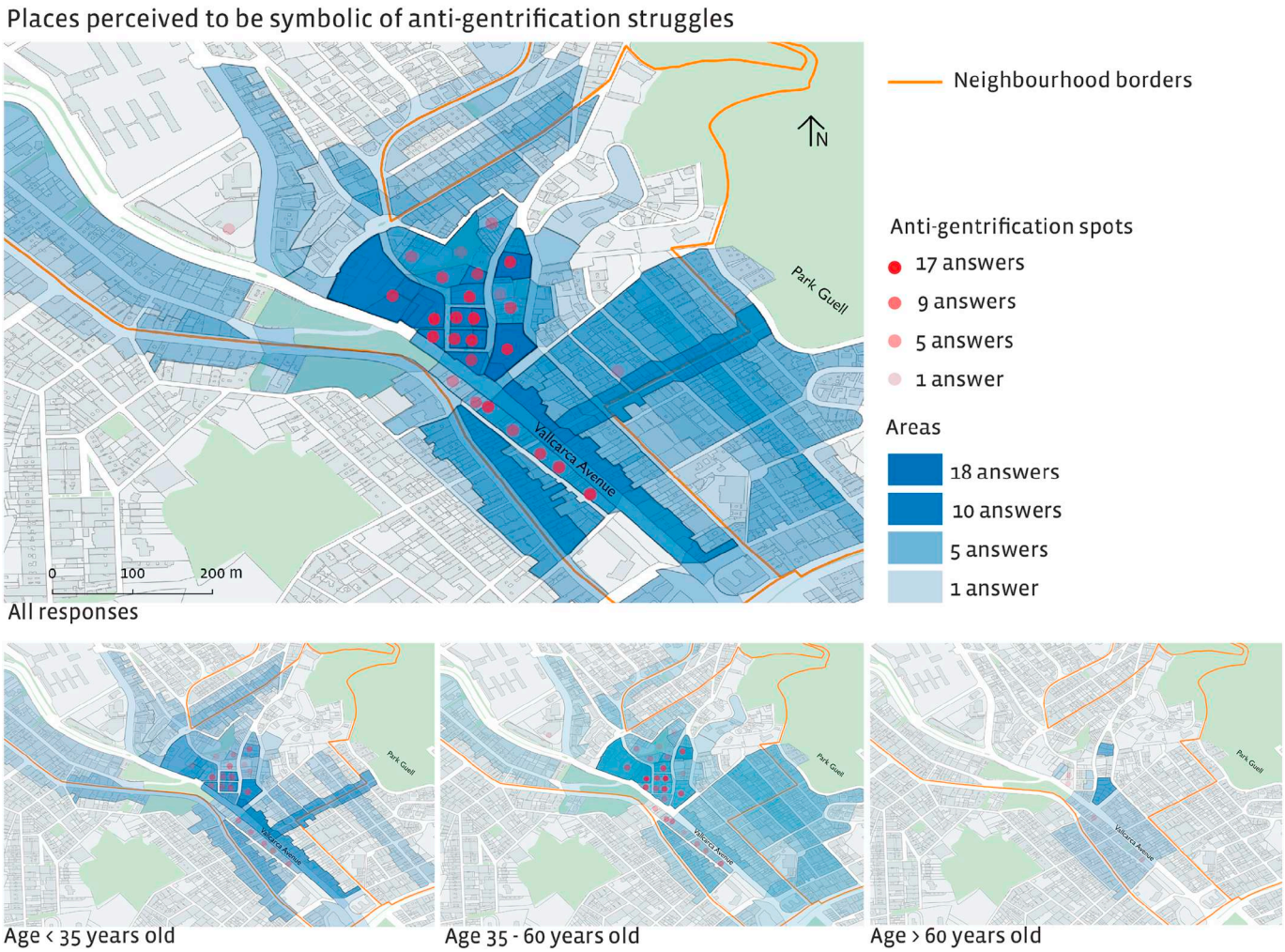

Fig. 9. Map: Places perceived to be symbolic of anti-gentrification struggles.

gentrification movements and policy. It directs them toward actions that make visible in real time the areas vulnerable to gentrification. The more broadly people perceive this vulnerability, the more possible a broader politics of, for example, housing affordability targeted to that area becomes.

More generally, the overlaps present in the cartography show that physical transformations – whether in the form of a demolition or of a change in the type of commerce – are highly noticeable by most of the residents, and can be measured through perception data. Behind the overlaps there are different feelings and a diversity of conflicting views, reinforcing the notion that gentrification is and always will be about conflict over space – but also that certain views are made visible while others are made invisible as the conflict plays out. In the case analysed, we see feelings ranging from violence for being expelled, to opportunity to engage with neighbors, from the positive expectation about what is about to come, to fear of a rise of speculation and expulsion of more residents. This range of experiences coexists with shifting demographics and environment in Vallcarca and it is the full sum of all of these shifts that structures resident experiences.

Finally, there is an important applied aspect to this research revealed in the final risk maps of gentrification according to residents. These maps can be used by the residents or public agencies to fight for and develop policies to avoid, for example, the spread of more tourist-oriented shops on the way from Vallcarca Metro Station to Park Guell – maps like this can be applied by other traditional neighbourhoods in Barcelona. Viewing the *in situ* aspects of gentrification as proposed here can not only help remediate the situation, but also help avoid its growth. As a contribution to anti-gentrification struggles, the critical cartography approach linked with more common gentrification studies can also be employed by residents to represent a collective point of view, making their argument stronger by giving empirical robustness to their concerns when fighting for anti-speculation measures. It can also be used by resistance groups to rethink some communication methods to engage with other residents. In this case, the anti-gentrification hotspot map shows that resistance in Vallcarca is connecting only with the younger residents.

To sum up, the cognitive mapping informed by critical cartography used in this paper is a tool to capture and spatialize people's perceptions and to measure gentrification as it happens, to be employed by on-the-ground policymakers and organizations. With this tool, we argue, it is possible to build a critical view from the ground up of gentrification that further extends our knowledge of the simultaneous and sometimes conflicting forces shaping the politics of place. There is, though, further field to cover in the area of critical cartography that leaves much to be discovered by linking these approaches.

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