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***Transport-induced gentrification in Latin America: An urban conflict arising from accessibility improvements***

Abstract: Through cross-sectional analysis, studies on transport-induced gentrification often interpret the phenomenon as an outcome instead of recognizing it as a set of intertwined processes. Consequently, limited insights are provided about the mechanisms underlying gentrification, which manifests gradually over the long-term interactions between transportation and urban development, primally driven by accessibility improvements. The absence of descriptive efforts poses a challenge for policymakers to predict or identify gentrification occurrence, besides inducing biased outcomes in investigations. This paper aims to provide researchers and policymakers with a conceptual framework of transport-induced gentrification, systematising explanations of space production and consumption in Latin-American metropolises. Firstly, we have undergone a theoretical review on land-use and transport interactions to develop an *a priori* conceptual framework. Subsequently, we applied a systematic literature review on empirical studies of Latin-American gentrification to incorporate some particularities into the framework, representing the phenomenon as an urban conflict generated in and through accessibility improvements.

Keywords: Gentrification, Transport projects, Urban accessibility, Land valuation, Latin America

## 1. Introduction

Over the last years, some conflicting implications from transport projects have been evidenced by investigations of transport-induced gentrification, especially in the Global North (Zuk *et al.*, 2018; Padeiro *et al.*, 2019). Potentially, investments in a new transportation infrastructure hold the capacity to transform urban socioeconomic landscapes by reshaping accessibility levels and encouraging, as a result, new developments around these infrastructures (Delmelle, 2021). Ideally, such landscape transformations could be accompanied by the social mobility of long-term inhabitants, since access to opportunities has been directly linked to positive labour market outcomes (Andersson *et al.*, 2014; Jin and Paulsen, 2018). However, some empirical evidence has shown that the observed changes may actually resulted from exclusionary processes such as gentrification, meaning that the benefits provided to some communities can potentially generate social constraints in the long-term (Chapple and Loukaitou-Sideris, 2019).

The main reason behind this is the dilemma on how housing affordability can decrease as accessibility improves, considering the tendency properties values have to follow accessibility changes (see Iacono and Levinson, 2011, 2017). Consequently, as a regulation factor of urban occupation, real estate prices may result in the displacement of those less privileged groups. This may suggest that designing transport systems only focusing on the distributive justice of access to opportunities (see Pereira *et al.*, 2017; Martens, 2017) is not sufficient to ensure a fair transportation policy; a critical concern lies in effectively implementing these transport projects and policies in order to guarantee the real enjoyment of accessibility improvements over time.

The dilemma surrounding transport-induced gentrification has boosted numerous investigations in the last two decades (Kahn, 2007; Lin and Chung, 2017; Nilsson and Delmelle, 2018; Baker and Lee, 2019). Despite being essential to a critical city planning,

these studies, as cross-section analyses, offer limited information on how gentrification unfolds over time by relying on operational definitions that are very vague and simplistic (Zuk *et al.*, 2018, Padeiro *et al.*, 2022). Overall, scholars in the core of gentrification theory agree that this phenomenon is generated in and through intertwined processes (Smith, 1996; Clark, 2005), depending on the geopolitical, economic, and social context in which it is developed (Ley, 1996; Lees, 2000, 2012; Robinson, 2015). We argue in this paper that such variations stem from both the preferences of gentrifiers and the strategies deployed by powerful stakeholders (public and private sectors).

In addition, it is worth noting that most of these studies are empirical grounded in Global North (Padeiro *et al.*, 2019), where transportation networks are already mature and fully developed. As argued by Iacono and Levinson (2017), this ideal context may diminish the marginal effect of accessibility improvements on real estate prices in higher-income countries. In this sense, some argue that scenarios marked by inequalities are more interesting for investigations on transportation and equity, such as Latin American cities (Vecchio *et al.*, 2020). For this reason, we intentionally delimited as our research object the Latin American metropolises, where the highly unequal patterns of accessibility and mobility (Tiznado-Aitken *et al.*, 2023) may result in more significant socio-spatial constraints. We note that urban theorization in Latin America has emphasised the role of transportation in the restructuring of capital and space (Rufino *et al.*, 2021; López-Morales *et al.*, 2021; Apaolaza *et al.*, 2016; Rérat, 2018).

Based on both the conceptual and geographical gaps mentioned above, this paper aims to provide researchers and policymakers with a conceptual framework of transport-induced gentrification in Latin American metropolises. To achieve this aim, we have structured this paper to address some questions: Section 2 covers a background review on gentrification theorisation (*How can we explain gentrification as a phenomenon*

*generated in and through intertwined processes?*); Section 3 presents an *a priori* general version of our conceptual framework, in which we represent the long-term interactions between transport and land development (*How can we represent transport-induced gentrification?*); Section 4 covers a Systematic Literature Review (SLR) that seeks for empirical evidence on Latin-American gentrification (*What are the characteristics and mechanisms of gentrification in Latin America?*).

Section 5 incorporates into the *a priori* framework the evidence found in the previous section, consolidating our aimed conceptual framework; and finally, in Section 6, we draw our conclusions and make some recommendations for future research.

## **2. Gentrification as a transformative process: explanations of space production and consumption**

Originally used to describe a spontaneous influx of the gentry into inner neighbourhoods in London (Glass, 1964), the concept of gentrification was later refined by Neil Smith (1996), who associated it with the idea of urban frontiers constantly evolving to surround processes of capital expansion in space. In this analogy, the primary physical outcome would be the revitalization of initially deteriorated or undervalued urban areas. Following Smith and many other scholars (Smith, 2002; Lees, 2000, 2008; Clark, 2005), gentrification is understood in this paper as a kind of neighbourhood transformation, distinct because it involves: capital investment in space – whether by public or private sector (or both of them); the influx of medium or high-class families and individuals to an originally working-class area; and possible displacements of low-income inhabitants.

These elemental aspects are generic and conceptually delimit gentrification as a transformative phenomenon. As argued in Section 1, we defend that the effect of geography on the phenomenon is indeed on the ways in which these elements are induced

by concomitant and intertwined processes (Smith, 1996; López-Morales *et al.*, 2016a; Harvey, 2019). After all, it is less likely that gentrification occurs from the emergence of a spontaneous new “affluent residential choice” (Atkinson, R., 2008:1), and more likely that it results from “some form of collective social action” (Smith, 1996:65). That is why there is a growing advocacy in the gentrification literature for the development of urban theories and descriptive efforts based on both explanations of space production and consumption. Neither side is completely understandable without the other (Clark, 2005).

On the one hand, the production-side is related to the actions of those powerful stakeholders with the ability to strongly modify the built environment; while on the other hand, the consumption-side brings up some humanist and qualitative information, regarding the reasons behind the emergence of new trends in residential choices (Ley, 1996; Butler, 1997; Butler and Robson 2003). In practice, the combination of such explanations helps us to explain that actions from a powerful stakeholder (or a set of them) were able to improve the perception or esteem that a higher-income population had about a location. In other words, strategies inherent to space production made room for the creation of a new consumption demand.

Besides those cross-sectional actions, other nuances keep acting as driving forces of gentrification over time, especially those ones regarding the private domain to which urban planners refer as land use. Firstly, it is important to consider that neighbourhoods attracting affluent in-movers, whom scholars often refer to as gentrifiers, are also likely to be chosen as the new location for commercial and services developments – especially those attempting to meet the consumption demands of higher-income classes (Zukin, 1990). Secondly, it is equally important to consider the existence of a spillover effect (González-Pampillón, 2022) as the ongoing inflows of affluent neighbours can be seen as an amenity, attracting other higher-income residents into the target area (Guerrieri *et*

*al.*, 2013). Over time, both land use interactions may induce outflows of lower-income people due to its role in increasing the cost of living - including property values and rents (Hamnnet, 1984).

All these cross-sectional and dynamics nuances may compose gentrification as the transformative phenomenon it is, whose intrinsic aspects and outcomes depend on the place in which gentrification manifests (Lees, 2000, 2012; Robinson, 2015). In this sense, recognizing such nuance's occurrence and systematising the relationships between them are efforts that may help researchers from designating other process as gentrification and confounding what constitutes the phenomenon and what is its outcome, as well as from producing biased analyses due to the incorrect attribution of causes and consequences. Therefore, we understand that the lack of descriptive efforts on cases of gentrification muddles the waters for urban planners, especially when it comes to predict or identify the phenomenon, as well as to anticipate anti-displacement strategies and tools (see Chapple, 2009).

Based on the arguments above, the discussion in the next section was designed to aid the formulation of an *a priori* conceptual framework that describes the unfolding of transport-induced gentrification. In this effort, the central idea is representing the processes related to both space production and consumption over time, considering it as the initial force the introduction of a new transport project as well as its consequences in terms of urban development.

### **3. Understanding gentrification as an urban conflict related to accessibility improvements**

Over the last decades, many scholars in urban planning, mainly related to transportation, have dedicated part of their efforts to develop frameworks regarding the Land-Use and Transport Interactions – LUTI, in line with a systematic approach which

considers land development and transportation as urban subsystems (Wegener and Fürst, 1999; Miller, 2003; Geurs and van Wee, 2004; Cascetta, 2009; Lopes *et al.*, 2019). On one hand, their frameworks point out that the travel behaviour which is observed in a local or regional area depends on the current state of the land-use pattern. On the other hand, they assume that the gradual consolidation of a land-use pattern results from aggregate location choices, which are largely influenced by the spatial distribution of accessibility; defined for many scholars, including for us in this paper, as the extent to which land-use pattern and transportation enable people to reach activities (Geurs and Van Wee, 2004).

The evolution of such models has been permeated by changes in the components of each urban subsystem as well as by the growing understanding that the interface between them occur via accessibility. However, most of these frameworks do not report the ambivalent role played by accessibility (Assis *et al.*, 2022): while regions with good accessibility levels are considered attractive in location choices (Zondag and Pieters, 2005), this same condition also acts as a socio-spatial constraint (de la Barra, 1989), as it has a strong influence on urban real estate markets, contributing to higher property prices (Iacono and Levinson, 2011).

Exception to this is observed in the representation of Geurs and van Wee (2004), in which accessibility is fragmented into the following components: (a) Transport component, that express the cost for an individual to reach a destination or activity by a specific transport mode or network; (b) Land-use component, which reflects the distribution of supply and demand for activities across space; (c) Temporal component, relating to the existing time constraints (the availability of opportunities at different times of the day, and the time available for individuals to participate in certain activities); and



(d) Individual component, represented by people's physical, social, and economic limitations.

Therefore, accessibility seems to be a suitable construct to represent the nuances of transport-induced gentrification over time. First because it is not surprising that, resulting from a state-led action, improvements in its transport component can encourage the migration of people and economic sectors towards new neighbourhoods (Bertolini, 2005; Delmelle, 2021). Second because in a consolidated scenario not only are observed changes in the demand for transportation (Waddel, 2011), but also in the neighbourhood's capacity of encouraging new inflows due the potential improvements in the land-use component; considering people and firms aspire to engage in activities (Wegener and Fürst, 1999). Besides, considering the individual component of accessibility help us to emphasise that each person (or group of people) presents different travel behaviours, levels of engagement in activities and specially inequal decision-making power in processes of location choice.

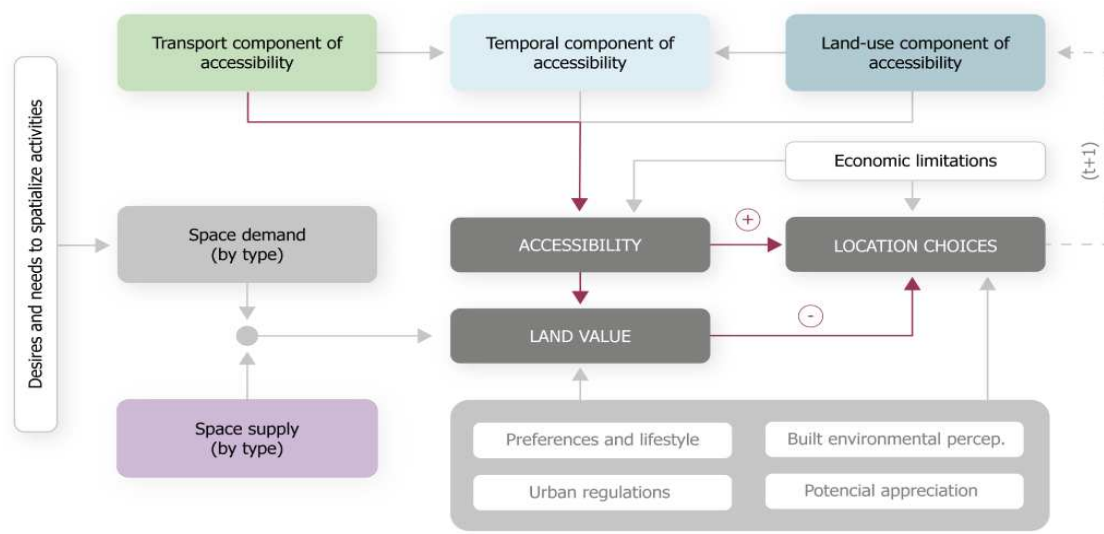
Emphasizing this dynamic is essential when there is the intention of representing the location choices of people with different income, as it is the case of gentrification, since inflows and outflows of inhabitants may occur gradually and concomitantly over time. In this sense, it's worth noting that, despite being helpful, LUTI frameworks are not designed to describe the process of location choice; they focus on the interface between both urban subsystems. As a consequence, traditionally, the location choices are only linked to the spatial distribution of accessibility as well as to the availability of space. Not even Geurs and van Wee (2004) exhaust the representation of this process, since their focus on the relationships between the components of accessibility, excluding from consideration exogenous factors.

Next section addresses the challenge of representing the location choice as a broader process in which accessibility components plays an important role.

### 3.1. Accessibility and location choices: the perspective of space consumption

Beyond the traditional arguments on how location choices are determined by accessibility levels and the confrontation between space supply and demand, in Figure 1 we also represent as determinants of such process: (i) the spatial distribution of land value as an explicit factor that contains its own determinants, including accessibility itself; (ii) other competitive advantages which make some portions of the territory more attractive than others, such as urban planning regulations (Kok *et al.*, 2014), and promises of plans and interventions, revealing an appreciation potential (Singer, 1982); (iii) environmental, cultural, physical, and social amenities that together influence the built environment quality (Kauko, 2001). In some studies, such amenities have been linked to aspects such as lifestyle, preferences, and perceptions (van Acker *et al.*, 2010) and are useful to understand high prices in remote areas.

Figure 1. General framework of location choice's determinants.



Source: Authors.

Essentially, as a construct related to the space consumption-side, Figure 1 only helps us to represent how people and economic groups make their own location choices in a post-facto scenario, meaning that the transport component of accessibility has been improved (first red arrow). While for low-income individuals, improved levels of accessibility may signify a reduction in their decision-making capabilities (whether to stay or move); the new scenario is viewed as positive for households and firms that are less sensitive to changes. In this sense, as a result of aggregate location choices, a city land-use pattern tends to be modified over time ( $t+1$ ), due to migrations of people and economic sectors.

In this image we represent the location choice as a cross-sectional process, considering a given state of variables. In this sense, we interpret the constructs in purple and light gray as inherent conditions at the time of choice, which merely assist us in justifying land prices and location choices itself. In this sense, Figure 1 excludes from consideration the actions that are played by powerful stakeholders in response to (or following) a turnover in public investment in space. As said before in this paper, exploring these actions may help us to represent the longitudinal and complex dimension of this phenomenon. As Harvey (2019) argued, only the integration of space and time can give us a better understanding of how changes in the political-economic field contribute to social practices and processes.

### ***3.2. Powerful stakeholders and their impact on accessibility improvements: the perspective of space production***

People and economic sectors move from one place to another over time. Using the same language of Figure 1, this means that families and firms are sometimes encouraged to switch places as some determinants of location choices change, whether due to rising rents or the emergence of areas that are more attractive in terms of use and

land occupation (land-use component of accessibility) or access to different modes of transportation (transport component). While some of these changes are generally led by the State, as the interventions on the public domain; others involve the proactivity of powerful stakeholders from private initiative.

Since the 70's, many space production actions have been pointed out as primally causes of gentrification depending on the time or place. Some examples are mentioned as following: tax incentives (Wilson, 1985), improvement grants (Hamnett, 1973), and the opening credit for building rehabilitation (Williams, 1978); besides urban revitalisations (DeGiovanni 1983). More recently, attention has been given to processes of housing market renovation (Helms, 2003; Wong, 2006; Boustan *et al.*, 2019; González-Pampillón, 2022) as well as to the implementation of transport projects (Rérat and Lees, 2011; Chapple and Loukaitou-Sideris, 2019; Delmelle and Nilsson, 2020; López-Morales *et al.*, 2021).

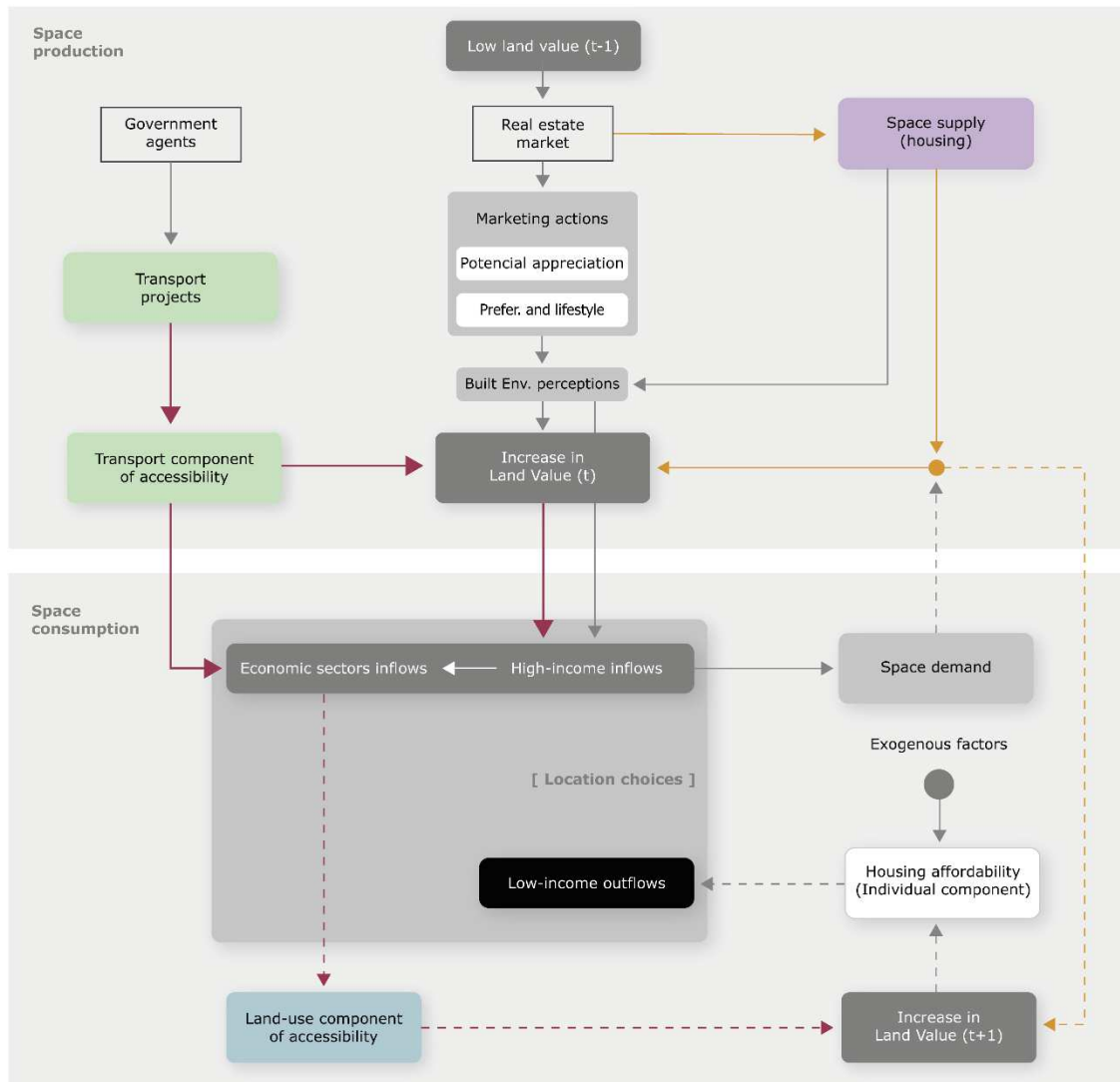
Specifically in the case of changes related to land-use component, it is worth noting the role the real estate market may play in the reconstruction of places; given that whenever newly built units replace vacant or deteriorated structures, the quality of a neighbourhood improves attracting higher-income residents into this neighbourhoods (Guerrieri *et al.*, 2013; González-Pampillón, 2022). As a consequence of this, it is known that target areas also tend to experience processes of use diversification over time, resulting in improvements in the distribution of supply and demand for activities (land-use component of accessibility). As the other argued changes, this new urban liveliness also has the potential to help changing the image people may have about an originally undesirable area, an aspect that is part of the reproduction and transformation of any symbolic order (Harvey, 1989). That is the point of connection between explanations of

space production and consumption, as the improvements in accessibility (land-use and transport components) help to create new space demands.

### ***3.3. A priori conceptual framework of transport-induced gentrification: aligning space production and consumption over time***

Based on the discussions in previous sections, in Figure 2 we propose *an a priori* general conceptual framework of the transport-induced gentrification, aligning explanations of space production and consumption. This general framework covers the direct and indirect impacts of accessibility (red arrows) on land valuation, as well as the impacts of space supply expansion, which is promoted mainly by the real estate market (orange arrows). As a start point, we depart from a stage of low land valuation and assume two moments of increase, linked to different components of accessibility (transport and land-use). In a phenomenological point of view, this low condition is quite suitable for the real estate market, whose representatives aim to obtain the more expressive rent gaps as possible, redirecting the production of residential and non-residential buildings to initially devalued regions.

Figure 2. *A priori* general framework of transport-induced gentrification



Source: Authors.

Unlike depicted in Figure 1, determinants such as potential appreciation, preferences, and lifestyle are now considered as strategies used by the real estate market to change the current image consumers have about the targeted place, aiming to create a new space demand, as mentioned before (Section 3.2). Along with the newly built units, such aspects improve the built environment perceptions, leading to an increase in land value which arises from space production dynamics.

Over time, improvements in the land-use component of accessibility may also be observed, due to the inflows of newly affluent families and new economic sectors. This

justifies the emergence of higher properties and rents as well as the increasing of local cost of living, making it difficult for lower income groups to remain and engage in local activities. In this sense, antagonistic conditions are created for groups of different income classes: while affluent individuals move into the developing territory, working-class families may be displaced over.

Planners deal, therefore, with a conflicting situation: on the one hand, by presenting higher levels of accessibility, an urban area can be developed in terms of territorial occupation by the action of real estate investors or individuals and firms who construct their own buildings (Hansen, 1959; Wegener and Fürst, 1999; Bertolini et al., 2005); on the other hand, the consequent increases in land value related to more attractive places can induce the displacement of low-income groups, who are more sensitive to fluctuations in the real estate market (de la Barra, 1989). In this sense, we argue that transport-induced gentrification should be seen as an urban conflict arising from improvements in accessibility.

It's noteworthy that we consider Figure 2 to be a "general" conceptual framework because, as previously argued, the intricacies underlying this transformative phenomenon vary depending on the location where gentrification occurs (Lees, 2000, 2012; Robinson, 2015). For this reason, we opted not to include conditions and actions that are typically observed in gentrification cases but whose representation may not apply universally across geographical contexts, such as changes in urban regulations and urban revitalization projects. Certainly, for example, it is possible that in some contexts, gentrification occurs independently of urban revitalization projects.

Ley (1996) refers to such condition as the 'geography of gentrification', an expression that has been defended by Lees (2000, 2012) to encourage non-Global North scholars to develop postcolonial approaches taking on board critiques around

developmentalism, categorization and universalism (Lees, 2008). In line with that, many researchers have dedicated their scientific production to such a geographic debate (Wong, 2006; He, 2007; Harris, 2008; Visser and Kotze, 2008; López-Morales *et al.*, 2021, 2016b), seeking to avoid the reproduction of unrepresentative narratives, incapable of contemplating the specificities of their geographical contexts.

However, as mentioned in Section 1, studies on gentrification and transportation rarely investigate the phenomenon through broad and flexible approaches in order to provide rich insights regarding its underlying processes (Padeiro *et al.*, 2019). Such efforts should involve the recognition of geopolitical aspects, power structures and market strategies, depending on each geographical context. Based on that, we applied in the next section a Systematic Literature Review – SLR to formulate insights on Latin-American gentrification based on empirical evidence, adding information to the *a priori* general framework.

#### **4. Gentrification in the Latin American Context: A Systematic**

##### **Literature Review**

Urban theorization has always highlighted the role of public actions as drivers of urban dynamics, particularly through investments in transportation and communications (Harvey, 2013). Up until this date, the majority of studies on gentrification in Latin America have aimed to describe their analysed cases through qualitative approaches (Janoschka and Sequera, 2016; Gonzalez, 2016; Bin, 2017; Hayes, 2020). Some of them even report transportation improvements as a part of the broader phenomenon (Rivadulla and Bocarejo, 2014; Janoschka and Sequera, 2016; López-Morales *et al.* 2016a); but in general transportation has not been the central focus of the Latin American research agenda – at least not with the intention of investigating its inducing role. The same is observed in the rare studies in which quantitative methods were employed (López-



Morales, 2016b) – justifying the absence of Latin American papers in the quantitative review undergone by Padeiro *et al.* (2019).

The lack of Latin American studies that are both descriptive and focused on transportation led us to conduct a comprehensive review, including studies not directly related to transportation. In this sense, the main goal of this Section is to situate gentrification and its underlying processes of space production and consumption in Latin America. As argued in Section 1, we understand that what geographically distinguishes gentrification is how these explanations unfold in space, considering the mechanisms of powerful stakeholders, the preferences of gentrifiers, and the consequences of all this.

#### **4.1. Review questions**

Janoschka and Sequera (2016) identified some typologies of gentrification in Latin America, obtaining as outcomes the following classifications: the symbolic gentrification related to architectural heritage; the symbolic gentrification related to cultural heritage; the formalisation of subaltern urbanisms; and the creation of new real markets. Each type of gentrification was defined based on: (i) the kind of target area - if a centrality or historic centre for example; (ii) the methods and mechanisms which were played by powerful stakeholders; and (iii) the used forms of violence (cultural violence, evictions, market forces, among others).

To some extent, we understand that these three criteria or dimensions are related to our previous discussion, especially to the explanation of space production; thus, we turned them into the following first three review questions: (a-i) who are the powerful stakeholders modifying and producing the built environment?; (a-ii) What mechanisms do they use?; and (a-iii) What kind of area has been targeted by the phenomenon?. As explained in Section 3, many mechanisms have been reported in other contexts, such as tax incentives, improvement grants, urban redevelopment projects, and incentives for

building rehabilitation. The aim here is to identify which mechanisms are applied in the Latin American context – by whom and where they take place.

Additionally, considering the consumption-side, we establish the following questions: (b-i) Who are the so-called gentrifiers? and (b-ii) what are their locational preferences? Regarding micro-sociological processes, the last two questions become relevant since gentrifiers have been markedly linked to social classes, considering aspects such as: income, gender, age, race, or sexual orientation (Warde, 1991; Bondi, 1999; Knopp, 1990). Generally, representatives of these groups share locational preferences that can explain migrations. Furthermore, it is almost impossible to disregard that these locational preferences may also incorporate gentrifiers' travel behaviour or mobility practices, an important issue for analyses about transport-induced gentrification (Rérat and Lees, 2011).

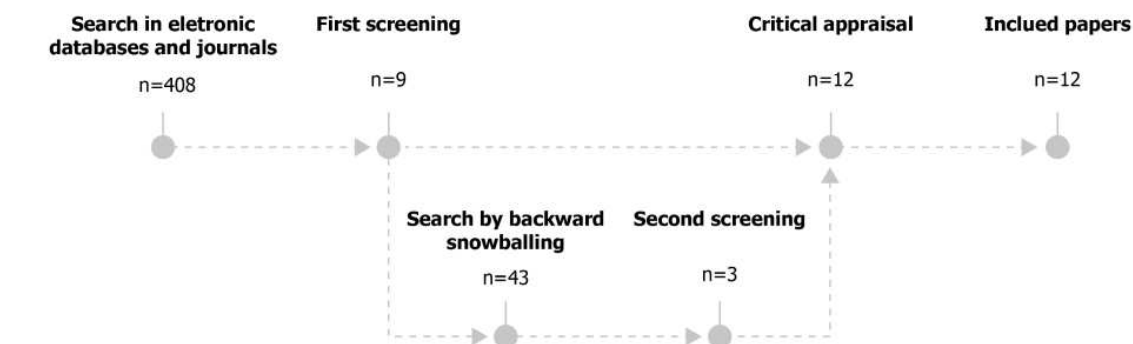
#### ***4.2. Review protocol***

As there is no consensus on the best way to conduct a Systematized Literature Review - SLR (Higgins and Green, 2008), we considered a set of different methods that are often used, especially by researchers on transportation and urban planning studies (van Wee and Banister, 2016). We ended up following the same procedures adopted by Baker et al. (2021), due to its closeness to the gentrification literature. Such procedures were: (a) Definition of review questions; (b) Search strategy and data sources; (c) Inclusion criteria; (d) Quality appraisal; (e) Synthesis of studies. In this subsection, we will explain the research method through this protocol, as the review questions were previously presented.

Regarding the search strategy, we put together some keywords via Boolean operators in two electronic databases (SCOPUS and Google Scholar), filtering only articles that contained the keywords in the title or abstract. The used combinations were:

"latin america" AND "gentrification"; "latin america" AND "displacement"; "latin america" AND "change" AND "neighbourhood". We also conducted an active search in the indexes of "Urban Studies" and "Environmental and Planning D (Society and Space)", as we noticed that many of the initial articles retrieved were from these journals. During this second phase, we also included articles that had the keywords throughout the text. Thus, a total of 408 papers were found, an amount that corresponds to all selected papers that have at least one of the key-word's combinations in the subject or title.

Figure 3. Review protocol.



Source: Authors.

Next, the 408 selected titles were submitted to a screening process based on the three following eligibility criteria: (i) studies presented in the form of scientific papers (essays, notes, book, chapters, and editorials were not considered); (ii) primary studies on gentrification in Latin-America cities with empirical evidence of different income groups' migrations (studies on displacements of informal trades were not considered, neither studies based only on land-value appreciation or rent gap theory, without evidencing residential flows); (iii) papers analysing only a few neighbourhoods (papers analysing multiple areas were not selected, as we assumed that such papers would hardly contain descriptive information). As a result, 399 titles were excluded, considering duplicity cases and those papers which did not fill the pre-established criteria.

Subsequently, considering the 9 remaining titles, we applied the "backward snowballing" technique, resulting in the founding of new titles. This made it possible to submit 43 new papers to a second screening. By the end, 12 papers had their qualities evaluated. This evaluation process considered the three dimensions suggested by Harden and Gough (2012): the quality of study execution, the adequacy to the review focus, and the adequacy to the questions. This was a categorical evaluation (high, medium, or low), which would imply the exclusion of any paper with some dimension evaluated as "low", meaning that:

- Quality of study execution: the study is not based just on general variables such as property value or building improvements, presenting evidence related to individuals;
- Adequacy to the review focus: related to the first dimension, the study does not make a good use of the term gentrification, portraying cases similar to urban requalification, social status growth or self-rehabilitation of buildings; and
- Adequacy to the questions: the study does not present a large contextualization of the process, hindering the answer to the questions review.

In the end, no paper was excluded in this critical evaluation appraisal, probably due to the criteria that were initially outlined.

#### **4.3. *Synthesis of studies***

Each selected paper analyses at least one medium or large city in Latin America. In general, the consideration of cities with different sizes showed no significant deviation in responses. Exception to this is the fact that two studies regarding medium-sized cities were straightforwardly linked to what Janoschka and Sequera (2016:21) interpret as a "museification of the historic centre", due to their architectural and cultural heritage. The answers regarding the review questions can be seen in Table 1, in which cities are identified through codes due to layout preferences.

Table 1. Synthesis of studies

REVIEW QUESTIONS AND ANSWERS		CITIES CODES*												
		A	B	C	D	E	F	G	H	I	J	K	L	M
Who are the powerful stakeholders modifying and producing the built environment?	Real estate developers + City government	x		x	x	x	x	x	x	x	x	x		x
	Landowners + City government					x							x	
What mechanisms do they use?	Supply of medium or high-rise residential buildings;		x			x	x	x	x	x	x	x		
	Refurbish of pre-existence buildings;				x								x	x
	Regulatory relief and zoning;	x	x		x			x	x	x			x	
	Transport projects	x		x						x				
	Requalification of public spaces	x	x	x	x	x				x			x	
	Dispossession and evictions	x		x						x				x
	Monetary public incentives for new residents; and tax incentives	x	x	x										
	Blockbusting or Redlining							x						
What kind of area has been targeted by the phenomenon? and how were they changed?	Heritage and touristic areas					x					x	x	x	x
	Central area that has been receiving high-rise residential buildings						x	x						
	Informal settlements, degraded industrial and port areas	x	x	x	x					x				
	Emergence of commercial enterprises	x	x		x		x	x	x		x	x	x	x
Who are the so-called gentrifiers and those?	Medium-class groups					x	x	x	x	x	x			
	University students				x									
	Migrants and tourists with higher-income lifestyles										x	x	x	x
What are gentrifiers' location preferences?	Green urban landscapes and others nature amenities								x	x				
NOTES														
*Cities codes							References							
Rio de Janeiro (A), Buenos Aires (B), and Mexico City (C)							López-Morales et.al (2021)							
Bogotá (D)							Muñoz & Fleischer (2022)							
Mexico City (E)							Mendoza (2016)							
Santiago (F)							Inzulza-Contardo (2011; 2016)							
Santiago (G)							López-Morales (2016b)							
Lima (H)							del Castillo & Klaufus (2020)							
Medellín (I)							Anguelovski et al. (2019)							
Cuenca (J) and Guanacaste (K)							van Noorloos & Steel (2016)							
San Miguel de Allende (L)							Navarrete Escobedo (2020, 2022)							
Panama City (M)							Sigler & Waschmuth (2016)							

#### 4.3.1. *Questions regarding the space production*

Table 1 shows that all papers mention the inducer role played by city governments, especially through the establish of flexibilities in urban regulations or rezoning efforts, which tends to facilitate the replacement of traditional residential typologies - mainly terraced houses - for new ones. Most cases report the construction of medium or high-rise buildings, except from the cases of San Miguel de Allende, Casco Antiguo, and Panama City, where gentrification processes involved the refurbish of historical buildings. However, even in these cases, regulatory reliefs were also important, with the flexibility of parameters and uses. Such findings highlight the relationship between municipalities and the real estate market itself, as the main stakeholder that promotes direct changes in housing supply.

Particularly in the case of Parque Patricios district, Buenos Aires, new buildings related to technological activities were more expressive than the emergence of new housing, although the housing market has also invested in apartments supply (López-Morales *et al.*, 2021). This seems to be a result from the tax incentives granted, a Technological Development Zone in the district area.

Several studies report that the production of new homes was accompanied by public projects designed at the urban scale, such as the requalification of public spaces and the introduction of new transportation facilities. On the four cases reporting forced displacement, three had transport projects as a state-led intervention observed. As pointed out by López-Morales *et al.* (2021), Rio de Janeiro case involved the piecemeal shutdown of informal collective housings, while the Mexico City case included direct and exclusionary displacement processes. Anguelovski *et al.* (2019) also reports that an indeterminate number of resident displacements have taken place in Comuna 8, Medellín, to make way for new construction associated not only with the Jardín Circunvalar but

also with the cable car station and infrastructural pillars along the cable car trajectory. The only exception to this transport-evictions relationship is the case of Casco Antiguo, where the evictions were related to the requalification of historical buildings (Singler and Waschsmuth, 2016).

Moreover, findings also show as strategies of space production harassments by landlords, as in the case of Mexico City (López-Morales et al., 2021), and attempts of blockbusting, which consists in a common practice played by real estate firms, when they buy one or two pieces of land in a block previously targeted for redevelopment. This was the case of Santiago (López-Morales, 2016b).

Regarding the places targeted by the phenomenon, some studies reveal the occurrence of gentrification in historic areas. That's the case of some tourist medium-sized cities such as Cuenca, Guanacaste (van Noorloos and Steel, 2016) and San Miguel de Allende (Escobedo, 2020, 2022), although the cases of Panama City (Medonza, 2016) and Mexico City (Singler and Wachsmuth, 2016) are also related to heritage centres. Despite that, Latin-American gentrification cannot be restricted to the historical or cultural space typologies, since some studies report the occurrence of gentrification in informal settlements (Anguelovski et al., 2019), degraded industrial and port areas (López-Morales et al., 2021) and other well-located regions that were previously occupied by the working-class (van Noorloos and Steel, 2016; López-Morales, 2016; Inzulza-Contardo, 2012, 2016).

In addition, it is worth noting that all 12 selected papers report the emergence of many non-residential buildings in the target areas: whether through the construction of new buildings or the transformation of existing ones. In many cases, the inflows of such activities are related to the new consumption practices of the gentrifiers, whether they are foreigners, students, or medium-class people.

#### *4.3.2. Questions regarding the space consumption*

In general, studies point to middle-class groups as the gentrifiers agents, meaning gentrification in Latin America does not seem linked to groups who share other aspects but income and preferences, at least not in the same way it has been shown in other parts of the globe, where there is a proliferation of studies investigating cases headed by women (Bondi, 1999), gay communities (Knopp, 1990), young urban professionals (Short, 1989), among others. In fact, the only studies that bring up some kind of standard gentrifier are those empirical grounded in medium-sized cities, with references to migrants and retirement groups, when it comes to tourist cities (van Noorloos and Steel, 2016; Sigler and Wachsmuth, 2016; Escobedo, 2022), and college students, as in the case of Las Aguas, Bogotá, where the gentrification process is suffering the influence of Universidad de Los Andes (Muñoz and Fleischer, 2022).

Unfortunately, despite the middle-class recognition, the selected papers do not provide much information about the gentrifiers' preferences, since only two of them point out amenities that are appreciated by the new space consumers. In some extent, these finding may indicate that the consumption explanation has not been the focus of gentrification studies in the Latin-American context. Despite the absence of direct evidence, the preferences for apartments, as well as for certain transportation modes, deserve further investigation as there are important information regarding the space-production side.

### **5. Transport-induced gentrification in Latin American metropolises: a conceptual framework**

According to our SLR results, gentrification cases in Latin America are often related to the gradual replacement of single-family units for multi-family ones. This densification process exemplifies the “gentrification of new buildings” (Davidson and



Lees; 2005, 2010) that has been also observed in other contexts, including London and North American cities. However, we note that pointing out this densification process is indispensable to distinguish the dynamic of real estate market in Latin America from other contexts such as Europe, where conventional and green retrofits have been reported (Williams, 1978; Bouzarovski et al., 2018; Cucca *et al.*, 2023).

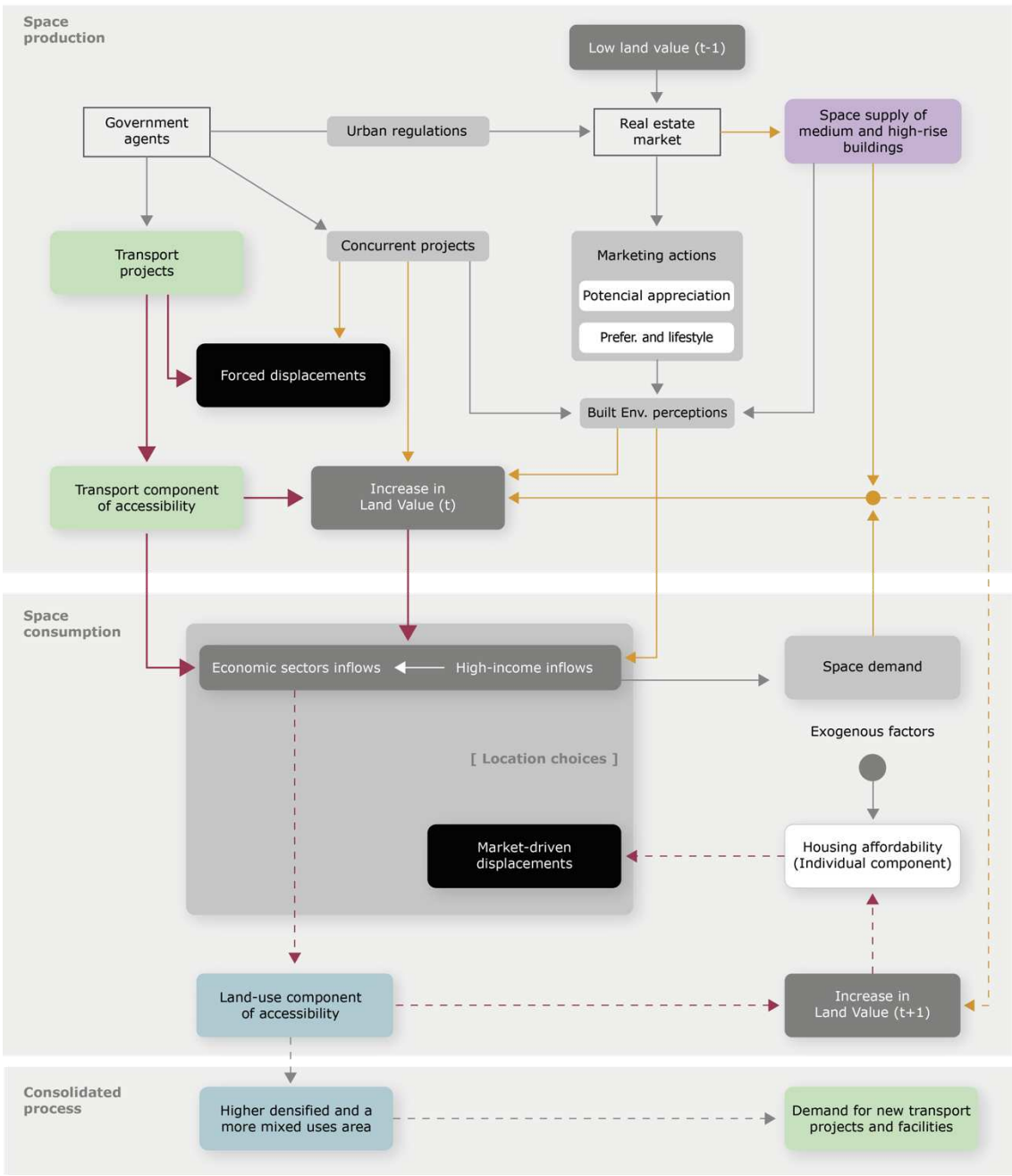
In Latin America, gentrifying people tend to buy a highly commodified new form of urban lifestyle, which means the emergence of a new trend in location choices is preceded by the production of a new housing stock. In this sense the main strategy of the real estate market has been to expand the supply of medium and high-rise buildings. Concomitantly, empirical evidence also points out that city governments have supported these densification processes through regulatory reliefs, as well as by increasing the expected rent gap by means of investments in infrastructure and the provision of amenities such as green areas. This suggests that the turnaround of housing production is usually anchored to public actions. In Figure 4, these space production dynamics are represented in the first frame.

Another important finding from the SLR is that gentrification in Latin America includes dispossessions and evictions of families and individuals residing in favelas and informal settlements. In the framework, this finding is represented by the "forced displacements" component. This condition seems to distinguish Latin American gentrification, revealing that access to land is an ongoing concern in such region - and in the Global South in general (Lombard and Rakodi, 2016). In this sense, informality and poverty seems to shape the phenomenon and make it unique to the region, facilitating conflicts involving land ownership (see Cummings, 2015).

The interface between space production and consumption frames is played by the determinants of location choices, with the variation in accessibility depending on its

transport component. In our proposed framework, we consider the influence of such determinants on higher-income people and economic sectors, for whom the term "choice" really suits. On the other hand, we represent the gradual outflows of low-income people by the “market-driven displacements” component, which is reinforced by cycles of improvements in the land-use component of accessibility and, as a result, by continuous increases in land values.

Figure 4. Conceptual framework of transport-induced gentrification in Latin America.



Source: Authors.

As may be noted, we did not specify a type of transport project in Figure 4, establishing no distinction between investments on roadways or public transport networks. López-Morales *et al.* (2021) report that the cases of Rio de Janeiro, Mexico City, and Buenos Aires involve specific transportation projects (tramway, bike lanes, and metro) as one of the "policy instruments" that were used within what the authors call "state-led gentrification". In general, one possible explanation would be that, in these cases, the phenomenon is related to the interest of gentrifiers in public or active transportation. Some research on Transit-Oriented Development - TOD goes in this direction, especially in the context of the Global North (Padeiro *et al.*, 2019; Rérat and Lees, 2011).

However, we argue that in Latin America context, this still is a questionable hypothesis, since most of the public interventions still favour individual motorized transportation modes, despite the significant investments in public transport that have marked this part of the globe in the last years, especially in Colombia (Cobos, 2014). Despite that, Latin-American middle-classes still perpetuate the preference for the individual vehicle, due to: (i) the status symbol automobile remains carrying (Vasconcellos, 2001); and (ii) the effects of inefficient transit systems that generates, in some cases, an almost forced dependence on the individual car for those high-income or medium-income residents living in peri-urban areas (Tiznado-Aitken *et al.*, 2023).

In this sense, attention must be given to the self-selection problem (see Ibraeva *et al.*, 2020), keeping the following question in mind: are higher-income groups moving to areas served by public transportation (because they want to) or, in fact, do middle-class areas become the target of public transport investments afterwards? The same goes for

walking or bicycle new facilities. In this sense, such investments might not induce the phenomenon, but rather serve as a coronation of it, adding even more value to the land.

For this reason, we also considered in Figure 4 that a scenario with higher density and greater diversity of uses may demand new projects and interventions in the long term, since the new land-use condition may attract leisure, shopping, and work-related trips of different income groups. Thus, the transit system expansion may become suitable and be related to the process, even if it is not the starting point. However, as we pointed out before, this still needs further investigation, as the selected papers do not allow us to be conclusive on such an aspect of transport-induced gentrification in Latin American metropolises.

## **6. Final comments and research recommendations**

Urban planners and researchers seeking to identify or avoid transport-induced gentrification in their communities might obtain valuable insights from this review. First, from our effort to represent such phenomenon through explanations of space production and consumption, we emphasize the underlying processes that composes gentrification, resulting in land valuations over time. The enhancements in the transportation subsystem are just the first piece of the puzzle; other public investments are also essential for the restructuring of urban space, as well as the role of the real estate market. The action of this powerful stakeholder has manifested in many ways - whether through retrofits or the expansion of housing stock, as observed in the case of Latin America.

Jointly, all these production-side actions help to consolidate a fresh perspective regarding neighbourhood quality, resulting in the appreciation of working-class areas. In this sense, gentrification poses a greater challenge for *ex-ante* efforts as they confront traditional location theories (Hamnett, 1991; Lees *et al.*, 2008). Hence, we argued it is

important to understand this phenomenon in depth - in order to answer under which circumstances it occurs, how, and what it produces.

From our explanatory effort, which was undergone through a SLR, we found some helpful evidence about Latin American gentrification. We recognize that there are probably missing papers in our review whether by the use of keywords in English during our search, our limit on the snowball technique, or the absence of those keywords in the translated abstracts - which is less likely. Even so, our findings show that such transformative phenomenon tends to involve a particular set of production mechanisms. Overall, the results reinforce that gentrification in Latin America is a form of accumulation by dispossession (López-Morales, 2015) mainly due to public investments. Specifically in those studies involving transportation projects, evictions of families and individual residing in favelas and informal settlements were reported. This seems to indicate the existence of an intersection between gentrification and urban informality in Latin America.

Besides, our findings also emphasize that the rent gap obtained by real estate market in Latin America seems to be enlarged by the expansion of floor space. Changes in building regulations have favoured the high-rise residential market (López-Morales, 2016b). Thus, the profit of private sector has been expanded by the possibility of building more floors and housing units; and not necessarily by conditions related to monopoly rent, which arises when it is not possible to replicate a specific desired condition (such as living by the waterfront or in historic centres). This is a condition that differentiates Latin American gentrification from other contexts, such as Europe, where retrofit cases are aligned with the crucial idea of profit from scarcity.

Regarding the space consumption-side, unlike other contexts, gender and sexual orientation do not appear in any of the SLR studies. The only social commonality

observed was the gentrifiers' income: most of the in-movers belong to the middle class. In this sense, one could argue that Latin American gentrification is a class phenomenon; however, we recommend that future research explore correlations with race and ethnicity, aspects that were also not addressed in the papers but which we consider relevant. Certainly, this gap will not result in unified findings across Latin American context, considering the different origins and representations of indigenous peoples, colonizers, and immigrants.

Unfortunately, the selected studies did not provide us with many findings on the preferences and consumer behaviour of gentrifiers – not beyond the fact they are interested in the high-rise residential market. Mobility patterns and preferences could not be identified. This indicates the existence of a phenomenological gap in Latin American studies. Particularly when it comes to transport studies, we recommend future research to seek evidence on the kind of infrastructures that can play an inducing role in Latin American gentrification. Furthermore, it can be of great value for the urban theorization in the region to identify whether such infrastructures are part of comprehensive plans or isolated interventions, analysing in both cases who benefits more from them.

In addition, it is worth noting that the SLR selected papers did not provide evidence on the occurrence of indirect displacements (or market segregation) - those which are caused by increases in overall cost of living, which includes the rent burden (Zuk *et al.*, 2018). Therefore, this elemental aspect of gentrification remains a hypothesis in Latin America, grounded in the gentrification theory. In this sense, looking ahead, a possible question for future research would be: *Does transport-induced gentrification in Latin America involve the indirect displacement of lower-income groups?*

A key recommendation of this paper is to investigate this phenomenon through a comprehensive approach, recognizing it as a longitudinal set of processes rather than a

mere outcome. To do so, we argue that a relevant methodological question arises from this recommendation: *how can we empirically analyse cases of transport-induced gentrification in order to provide pertinent information to urban planning?* We understand that one of the main purposes of these post-facto investigations should be providing urban planners with sufficient information to recognize and prevent gentrification occurrences, as well as to map the susceptibility of certain regions. This kind of effort has been well conducted in the Global North (Chapple, 2009; Zuk *et al.*, 2018). However, we have not found studies with this purpose in Latin America.

We recognize that the definition of the research questions we did in Section 4 limited the discussion about gentrification in Latin America. In this sense, we raised some other questions that may be relevant to the development of urban theorization in the region: *What has been the role of displaced groups during the onset of the phenomenon? What resistance practices have they been engaged in? Have these practices been effective? When not, have these groups been penalized in terms of accessibility?*

Finally, we argue that the long-term interactions between land development and transportation should be more explored by the growing transportation agenda on justice and equity. Transport-induced gentrification raises questions about city planning efforts that confine transportation policy formulation to improving the infrastructural accessibility levels of vulnerable groups. It seems imperative to ensure that such groups will be able to benefit in the long term. This is a perspective that led us to the advocacy for more transparent ex-ante analyses of large transport infrastructure, in such way to expose their long-term social equity effects on local populations and communities (Lucas, 2012), especially in Latin America which is one of the most interesting settings to consider issues of transport and equity (Vecchio *et al.*, 2020).

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