Using financialised housing as a planning instrument: the impact of urban containment policies on affordable housing in Mexico City

Thesis submitted for the degree of Doctor of Philosophy by

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August 2022

Declaration

I, Tania Cristina Guerrero Ríos, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Abstract

The main aim of this thesis is to assess the implications of using housing financial regulation as a way to control urban development patterns. To do so, this research looks at the Urban Containment Perimeters (UCPs), a federal policy in Mexico that attempts to contain urban sprawl by making federal subsidies for the development of low-income housing conditional on location closer to cities' urban core. The UCP policy recognises the fundamental role of financialisation in the provision of housing that, supported by a narrative of finance as an enabler of homeownership, has dramatically contributed to enhancing socio-spatial inequalities associated with urban sprawl.

Using a mixed methods approach and focusing on the Metropolitan Area of Mexico City, this research examines the narratives and political setting behind the origins of the policy, its effectiveness in controlling urban development and the repercussions that using housing as planning has had for the roles and strategies played by different actors, including private developers and local planning officials. As urbanisation processes have evolved in the peripheries of Mexican cities, planning approaches have remained outdated and unable to cope with the rapid pace of growth inherent in the financialised housing model. Reading the UCP policy as 'peripheral planning' allows us to recognise its neoliberal character while understanding its potential to respond to peripheral urbanisation processes in a way in which conventional planning strategies have failed.

The research findings make an important contribution by providing novel empirical evidence, not only of the policy's effectiveness, but also of the consequences and the potential of using financialised housing as a tool to steer urban development. This is particularly relevant in contexts where a lack of municipal enforcement skills has enhanced the negative externalities of urbanisation patterns.

Impact statement

This research offers a series of potential contributions within and beyond academia.

The main contribution in academia is to provide a conceptual link between the commonly disarticulated fields of urban planning and housing. By looking at the implementation of the Urban Containment Perimeters (UCPs) in Mexico from both these angles, I have been able to assess the implications of using financialised housing to steer urbanisation processes. In addition, the combination of research methods employed contributes to research in the social sciences by integrating the high level of detail offered by qualitative methods with the robust numerical analyses achieved by quantitative and cartographic methods, thereby allowing grounded generalisations. This research therefore makes conceptual and methodological contributions to the fields of geography, urban planning, housing and development studies.

The benefits of this research extend beyond academia. Because my research focuses on the assessment of an innovative public policy, it makes an important contribution to urban policy development. By offering a systematic and quantifiable assessment of the impact of the UCPs, I provide valuable evidence of their effectiveness and limitations. The analysis could therefore influence future adjustments to the policy. In addition, by critically evaluating the effect of the UCP policy on housing location, the findings can be translated into policy recommendations that might directly improve the quality of the built environment in affordable housing projects, as well as promote a more sustainable and equitable form of urbanisation.

As regards geographical outreach, the most direct impact would clearly be in the Mexican context, where other municipalities may be willing to adopt the UCPs as a supplementary planning tool after my findings demonstrate how easy it was for some municipalities to adopt them. My findings could also contribute to housing and urban policy innovation across Latin America where similar financialised housing models are driving urbanisation processes, and in other counties in the global south struggling with the enforcement of local urban planning.

These contributions of this research have already been disseminated in various ways. I have found in international conferences an opportunity to structure my arguments and present my ideas to different audiences at conferences organised by the Society of Latin American Studies, the American Association of Geographers, the Royal Geographical Society and the Research Committee on Urban and Regional Development (RC21). In 2018, I presented my work at a

conference on metropolitan urban development in Mexico, organised by the Universidad Autónoma Metropolitana, followed by a publication of the conference proceedings. I am currently working on a chapter for an edited book about urban planning in Latin America. I also have been actively engaged in related research networks and in organising conferences and workshops. In 2020, I co-organised the conference Latin American Urban Dialogues at the University of Bremen, followed by a workshop in 2021. These activities focused on Latin America have served not only to disseminate my research but to contribute to knowledge production in and from the region.

Acknowledgements

Firs of all, I would like to thank my supervisors Ann Varley, Pushpa Arabindoo and Jens Kandt, without whose support I would not have been able to complete this research. Ann, you are perhaps one of the toughest but most engaged supervisors I could ever have dreamed of. Thank you for believing in my ability to do this work and for pushing me through my writing until I was able to find my own voice. I will miss those invaluable discussions about our shared passions: housing and Mexico, although I am sure there will be more to come.

I would like to acknowledge the support of the Mexican Council for Science and Technology (CONACyT) for funding my first years of research. I am also thankful for UCL's cross-disciplinary training scholarship that allowed me to spend a year studying at the Centre for Advanced Spatial Analysis (CASA), under the supervision of Jens Kandt. I would also like to thank the Society of Latin American Studies for funding one of my field trips to Mexico. I am particularly grateful to all my research participants for showing interest in my project and being willing to share advice, contacts and data with me. Without your contributions this thesis would have never existed.

My PhD journey included periods of hard and solitary work, and without the company of my friends I would have missed the most enjoyable parts of it. From the UCL Department of Geography, I would like to thank Gümeç Karamuk, Hui-Chun Liu, Lioba Hirsch (and Aidan), Niranjana Ramesh (and Shyam), Sarah Kunz, Álvaro Sánchez, Daniela Lainez and Soledad Martínez. Thank you for those countless pomodoro writing sessions, litres of coffee (and beer) and the many lunchbreaks we enjoyed together. We made friendships for life. Thank you as well to Miles and Max for always greeting me enthusiastically on my way to room G14. To Magui Garfias, who started this journey with me, thank you for always being there and for sending me funny cat videos when I needed a laugh. To my friends outside UCL (although somehow all connected to UCL), Vanessa, Amieth, Lena, Ragnhild, Fran and our dear Konrad, thank you for helping me discover so many beautiful parts of the UK, and for the mandatory pub stop at the end of a nice hike or a climbing trip.

To my former colleagues at CAPSUS, Ricardo, Carmen, Guillermo and Dani, thank you for supporting me, particularly in the early years of this PhD, and for always keeping me in the loop with your interesting projects around the world. To Heidi Sohn and my dear 'asymmetricals', thank you for introducing me to critical thinking and for making me look

differently at my home country. All we (still) want is an urban revolution! I am also grateful for having joined the UGoveRN research network, whose members are making my new academic chapter in Amsterdam all the more welcoming and exciting.

I would like to especially thank my parents, my sisters Katia and Itzel, my brother Sergio, my brothers-in-law and my lovely niece and nephews. Papá y mamá: gracias por apoyarme en todo lo que he querido hacer, sin nunca ponerle limites a mis sueños, inclusive si ellos significan vivir lejos de ustedes. Dank jullie wel familie Tijhuis, for making me a part of your family and supporting me at every step of this process and always keeping detailed track of my progress.

My deepest gratitude is to Emiel, my main support during this long journey. Thank you for following me wherever my crazy dreams take us, whether Mexico, the UK or the Netherlands. Thank you for your patience during those numerous discussions that added so much clarity to my ideas. Finally, thank you to our daughter Lina: you were my greatest motivation to complete this journey just in time for our next journey together to begin.

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AGEB	Enumeration district (Área Geoestadística Básica)
AMLO	President Andres Manuel López Obrador
CAD	Computer-Aided Design
CANADEVI	National Chamber of Development and Housing Industry
CDMX	Mexico City (formerly DF or Distrito Federal)
CONAVI	National Housing Commission
CONAPO	National Population Commission
DENUE	Directory of Local Units and Enterprises
FOVISSSTE	Public Service Workers' Housing Fund
GIS	Geographic Information Systems
INEGI	National Institute of Statistics and Geography
INFONAVIT	National Workers' Housing Fund
INV	National Housing Inventory
MORENA	National Regeneration Movement
PAN	National Action Party
PRI	Institutional Revolutionary Party
PRD	Democratic Revolution Party
RENARET	National Land Register
RUV	National Housing Register
SEDATU	Ministry of Agrarian, Territorial and Urban Development
SEDESOL	Ministry of Social Development
SHCP	Ministry of Finance
SHF	Federal Mortgage Trust
SNIIV	Housing Information System
UCPs	Urban Containment Perimeters

1 Introduction

In 2007, I studied my hometown (or rather, 'home megacity') Mexico City from a new standpoint, from abroad. While completing my master's studies in the Department of Architecture at the Technical University of Delft, the Netherlands, I was confronted with critical thinking about the social, political and economic processes behind social housing production that led to the creation of a particular housing and urbanisation model in Mexico. During fieldwork in Ecatepec, located in the northern periphery of the Metropolitan Area of Mexico City, the shocking monotony of massive housing developments of 14,000 units contrasted with the adjacent self-built or incremental housing development, creating clear urban asymmetries. Referred to as a dormitory city, Ecatepec hosts a population that largely depends on jobs in the central municipalities of Mexico City (about two hours' commute from Ecatepec), which enhanced socio-spatial inequalities in the centre/periphery that are a common feature of the metropolitan area.

The solution to the socio-spatial inequalities in Ecatepec seemed simple: bringing the city to Ecatepec. The architectural and urban solutions we proposed in our dissertations were a collective attempt to counter the neoliberal urbanisation processes by—perhaps naively—proposing alternative land uses, including workshops and new forms of production for the residents as well as proposing alternative financial structures based on housing cooperatives (Ashabashvili, Bai, Bizzarri, García-Sancho, Guerrero, Kolnaar, Lühl, Voogt, ter Weel and Zveibil 2011). Years later when I visited the same developments in Ecatepec, it was obvious that there was no need for an architect to propose solutions, as residents themselves were involved in transformations of their dwellings into shops and businesses in order to compensate for their neighbourhood's lack of services and amenities. While the case study in Ecatepec was my introduction to the social housing development model prevalent in Mexico, I would later encounter even more extreme cases of this housing model in more remote locations, of poorer quality and with even smaller houses.

In the years that followed my return to Mexico, I worked as a researcher at Centro Mario Molina, a not-for-profit organisation that provides policy advice to local and federal government regarding sustainable development. From this organisation, I witnessed several attempts to change the urban development patterns this housing model had created. I worked closely with federal officials, who continued to focus their efforts on improving energy and

water efficiency within the dwellings while we continually pointed out the need to improve what happens in the urban environment of the dwelling, hence the main issue was the location of housing (Ochoa, Guerrero and Velasco 2017). At the same time, I worked with local planning officials from different municipalities across the country who struggled to adapt to the rapid pace and scale of urbanisation inherent in this housing model.

In 2013, the federal government changed its strategy significantly by introducing a policy that focused on improving the location of housing through the implementation of Urban Containment Perimeters (UCPs). The policy was, in a way, a response to criticism by us and others of the poor location of social housing developments and the limitations of local urban planning. I was immediately intrigued by the UCP policy since it used innovative techniques in a radical attempt to steer urban development towards certain pre-defined areas across 384 Mexican cities. The UCPs are not greenbelts, nor growth boundaries. They use financial incentives (in the form of federal housing subsidies) to attract low-income housing production to certain pre-defined zones that are supposed to have better access to jobs and services. In that sense, they are non-restrictive instruments and instead of prohibiting development they provide incentives for development in specific locations. The relevance of the UCPs in steering urbanisation processes can be better understood in a context with weak urban planning implementation skills, like Mexico, than in a context where what is planned is what gets built. Despite the innovative character of the policy and the transformative potential it could have in urbanisation processes across Mexico, there has been little interest in analysing the impact that the introduction of such regulations could have on development patterns (see Monkkonen and Giottonini 2017; Reyes 2020a; Hidalgo, Calleja, Alvarado and Salinas 2021). Apart from some cases of location-based subsidies, which are not linked directly to pre-defined zones but to specific conditions to be met, such as proximity to services and schools (Hidalgo *et al.* 2021), I have not found similar policies based on pre-defined zones elsewhere.

Noticing this gap, I decided to pursue a PhD in order to focus on assessing a policy that I believed could make a contribution to the fields of housing and urban planning. In this sense, my research is largely policy-driven and, due to my background and problem-solving focus, it is also action-oriented. Pursuing the PhD abroad meant that I would be able to see my city again from a different perspective while I was exposed to different approaches to doing research in the Department of Geography at UCL where the focus on social science perspectives forces us not only to suggest a solution to a problem but to reflect critically on the

event of interest. Studying Mexico from abroad also obliged me to conceptualise my research within a global context. This implied an important effort to translate concepts that were specific to the Mexican context—such as social housing, *conjuntos urbanos* and local urban planning instruments—to a 'non-Mexicanist' audience.

The critical analysis of this policy highlights a series of key themes regarding the market, state regulation, space and knowledge production. First, the interaction between the housing market and regulation is inherent in the policy itself since it regulates the location of subsidised housing. This interaction implied shifting power relations, where some actors held stronger negotiating positions regarding the policy's definition, but also an impact on the housing development model as the policy triggered new land-market dynamics. Second, as these market-regulation interactions materialise in space, they have a direct impact on urbanisation patterns exposing local governments' lack of capacity regarding urban planning. Third, the innovative character of the policy demonstrates the importance of knowledge and technology in policy innovation, where some actors have benefited from this knowledge and have used it to pursue their political goals while others have been kept in the dark. These themes are relevant not only for Mexico but also for many countries across the global south and north, as there is a global struggle to achieve spatial justice with the market, legislative and regulatory instruments currently available.

The underpinning question behind these themes is one about governance, where fragmented and decentralised policy processes interact with multiple networks of actors at different scales and limit the government's capacity to implement policies (Guarneros-Meza 2008, p. 1013). Looking critically at the UCP policy highlights gaps in the governance structures behind existing housing and urban planning policies that lead us to question the possibility of a need for stronger, more interventionist approaches.

1.1 Problematising housing and urban planning

As I write the last chapters of this thesis, I look through my window in Amsterdam (where I have relocated for the last months of my write-up) and see similar problems to those I saw in London, and those I studied in Mexico. Access to housing has become a common struggle across the global north and south, particularly affecting the lower-income population. The question of 'Where do you *want* to live?' has been replaced by 'Where can you *afford* to live?' The nexus between location and access to housing therefore overlaps through different

contexts. While in each context there are different ways to ensure every citizen, and particularly the most vulnerable, can access housing of at least minimum quality standards, similar players interact in varied ways across all cases: the state, the private sector and local planning officials. The dance between the regulation (implemented by the state) and the market (operated by investment trusts and private development firms) has endured for some time, constantly swapping the leading role. Yet the ways to regulate (or deregulate) the housing market have direct implications for the built environment and the socio-spatial processes behind urbanisation (Rolnik 2019).

This is where urban planning intersects with housing, seeking to accommodate these processes in an orderly manner that ensures collective benefits for society. This contradiction, between maintaining access to housing (a private benefit) as well as an adequate built environment (a collective benefit), means that housing and planning policies often conflict. Housing and urban planning have resulted in frequently dislocated policies that attempt to deal both with the provision and spatial distribution of housing. The geographies of housing shape the way cities grow, depending on how restrictive or articulated urban planning policies are. Yet as planning loses more of its spatial component, and focuses more on general development of norms and guidelines (Neuman 1998), it risks affecting the geographies of housing. Those who do not fit these norms will end up segregated from certain zones and, more importantly, if land prices are not incorporated into the formula, then this will likely translate into displacement of the low-income population to the most remote and disconnected areas.

In this thesis I explore the implications of this dislocation between the fields of housing and urban planning. Looking at literature on both fields and highlighting the gap between them helped me understand the persistent disconnection between housing and planning policies. I look particularly at how the evolution of neoliberalisation processes has affected the way in which each field is studied, which, ultimately, has had an impact on the types of policies designed and implemented. Focusing on housing financialisation, I trace the evolution of state-market relations through the different stages of neoliberalism. With regard to urban planning, I focus on the way planning strategies have travelled and adapted to different contexts, particularly in Latin America. My review highlights the different rationalities behind housing and planning, the first regarded as highly political while the latter is often considered from a mere technical and normative perspective (Murdoch 2000; Madden and Marcuse 2016). These contrasting rationalities are also enhanced by the intricate governance structures behind

housing and planning where a complex institutional architecture and different degrees of decentralisation have affected the ability to innovate and implement housing and planning strategies in an articulated way.

Finally, I look at how housing and planning policies have or have not responded to the recent transformation of urbanisation processes, particularly at the peripheries of cities. I explore literature on peri-urban space, highlighting new conceptualisations of the peripheries in a non-spatial way. In particular, I focus on Teresa Caldeira's (2017, p. 4) conceptualisation of 'peripheral urbanization' as a process that creates heterogeneous landscapes where different temporalities interact in transversal ways with the actors and politics behind urbanisation. This concept has adapted well to recent transformations of urbanisation processes in the global south, where the predominant role of finance has permeated into housing and urban planning spheres. Based on Caldeira's concept, I introduce the term 'peripheral planning' to depict innovative ways of planning, like the UCP policy, which seem to respond better to peripheral urbanisation than conventional planning strategies. By using financialised housing as a means to steer urban development, the UCPs are effectively linking housing and planning policies, with a direct impact on peripheral urbanisation patterns. By exploring the UCPs as 'peripheral planning', this thesis seeks to make a conceptual contribution to debates on urban development, strongly based on empirical evidence.

1.2 Housing and urban planning in Mexico

There are different reasons why Mexico constitutes a relevant case to study housing and urban planning. Over the last three decades, Mexico has witnessed a radical transformation of housing policy. The introduction of neoliberal reforms in the 1990s led to a major transformation in the way housing was financed, produced and distributed spatially across urban areas (Reyes 2020c). This led to new housing options becoming available for the lower-income population. Until then, the 'formal' options for this segment of the population were social housing units developed by state housing institutions, but these were never enough to cope with the large demand. After the 1990s reforms, these housing institutions transformed from producers of housing to enablers of finance (Puebla 2002). As housing and pension funds, these institutions opened the possibility for low-income workers to access mortgages at subsidised interest rates for the first time. For private housing-construction companies, it represented a door to a new market that was previously unimaginable: the lower-income segment. Massive social housing developments were built as the housing model was praised

as a solution to affordable housing, thus efforts focused on the quantity rather than the quality of housing. More recently, new ways of financing and new actors have allowed, for example, access to a secondary market through the securitisation of mortgages (Heeg, Ibarra García and Salinas Arreortua 2020). These conditions created what we can call the financialised housing model.

The financialised housing model resulted, however, in a distinctive pattern of urban development, as the government made little effort to regulate the quality of the built environment and the location of privately developed social housing estates (Figure 1.1).

Figure 1.1 | Social housing development El Dorado, Huehuetoca, State of Mexico

Source: Author, 2018

As long as the developers provided basic infrastructure—roads and water, sewerage and electricity networks—municipalities would maintain the infrastructure and deliver the required urban services—water and sanitation, refuse collection, policing, emergency services—after the project's completion. Private developers sought large-scale, low-cost land in municipalities with lax urban planning regulations, mainly to be found in and beyond the urban peripheries of cities (Eibenschutz and Goya 2009; Libertun de Duren 2018). Consequently, the location of social housing estates grew further away from city centres and employment hubs, from an average of five kilometres from the city centre in 2000 to 45 kilometres in 2006 (López-Silva, Abreu-Lastra, Saracho-Martínez and Paulín-Hutmacher 2011). This model has been criticised for stimulating excessive urban expansion and for leading to widespread housing abandonment

in many cities, given the lack of urban amenities and poor location of many of the developments (SEDESOL 2012; OECD 2015; Reyes 2020b).

This expansive urbanisation pattern collides with local urban planning instruments that have failed to keep up with the fast pace of development. As discussed in Chapter 7, the institutional architecture behind urban planning policies has meant that municipalities are responsible for developing and implementing their planning instruments, yet they are highly dependent financially on the State and federal government. In addition, the State grants authorisation for new financialised housing developments, while the municipality only endorses that these comply with access to basic services. This situation often resolves in municipalities investing a great deal of resources in providing and maintaining services for housing developments that may not necessarily comply with what is stipulated in their planning instruments.

Against this landscape of a predatory financialised housing model and a context with limited planning and implementation skills, the federal government took a radical shift in policy that threatened to modify the prevailing housing development process. The implementation of an innovative policy, the UCPs, represented a way to link the housing market to urban planning.

1.2.1 The innovative character of the Urban Containment Perimeters (UCPs)

In 2013, with the return to the Presidency of the Institutional Revolutionary Party (PRI),[1] President Enrique Peña Nieto recognised the impact of this housing model on urban expansion (in part because massive social housing developments had been largely supported by the two previous 'opposition' administrations) and promulgated a New National Housing Policy. Among other reforms, he proposed the use of housing finance as a means to tackle urban expansion, considering it 'the most important instrument available to the Government, and the one that will be used, precisely, to guide the policy of urban development'.[2] As an important part of this housing reform, Urban Containment Perimeters (UCPs) were implemented as a policy to direct subsidies for the development of social housing towards certain areas closer to the cities' urban core. This was a way to promote better located housing for the poorer population sectors, 'better' being understood in terms of access to urban services and

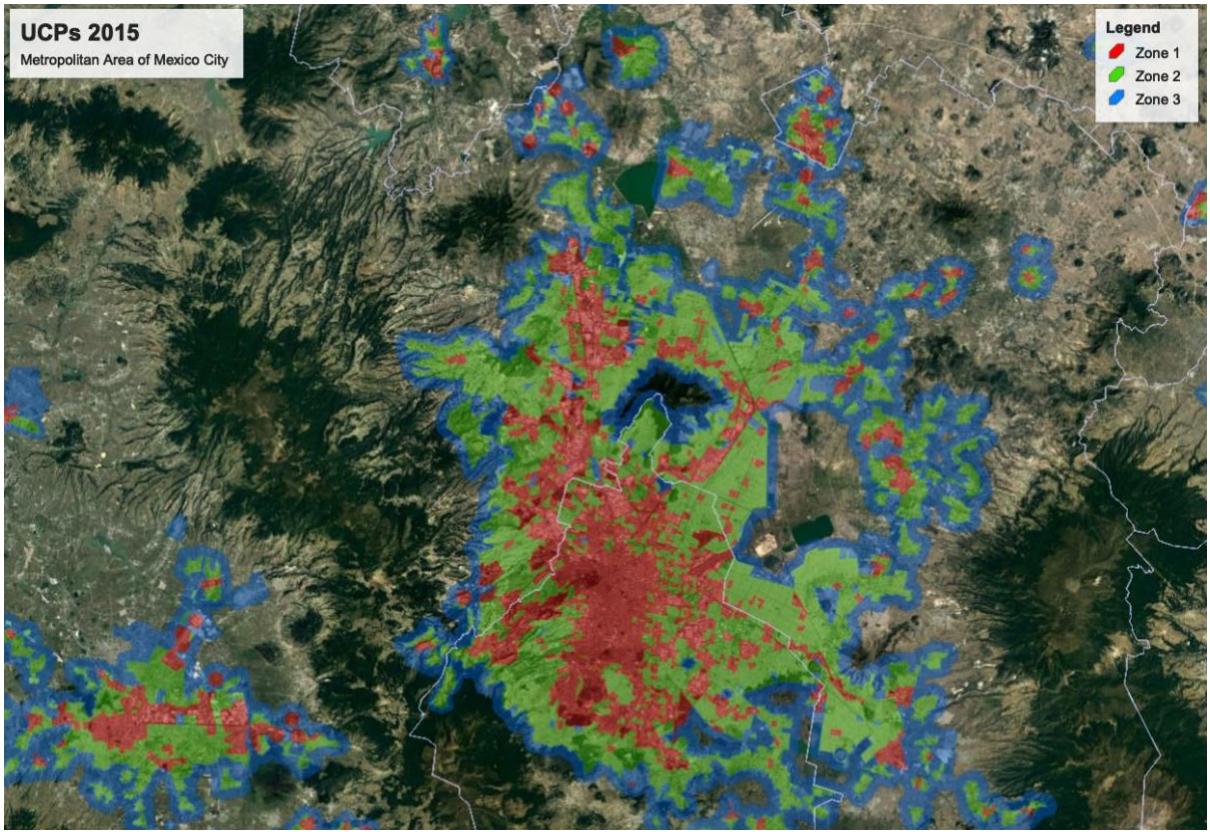
[1] The political party that had ruled the country for 71 years before being replaced for two terms by National Action Party (PAN).

[2] Speech by Enrique Peña Nieto, President of Mexico, Presentation of the New National Housing Policy, Mexico, 11 February 2013.

amenities. UCPs are therefore an attempt to achieve an ordered urban development to counter the negative externalities created by previous housing policies.

The UCPs are part of a complex grading system to determine a dwelling's eligibility for federal subsidies. This grading system included concepts like density, energy and water efficiency and proximity to amenities, but it was not until the introduction of the UCPs that the location of housing was incorporated. The UCPs included maps defined by a series of algorithms that classified urban areas across the country according to different levels of urbanisation (see Figure 1.2) (DOF 2015). They include three classifications: consolidated urban areas with access to jobs (Zone 1), semi-urban areas with coverage of basic services (Zone 2) and a geographical buffer of non-urban areas surrounding the urban and semi-urban areas (Zone 3).

Figure 1.2 | The Urban Containment Perimeters, Metropolitan Area of Mexico City



Source: CONAVI (2015), Google Earth 2021

The UCP policy represents a radical reassertion of state involvement in/control over the regulation of housing production and hence in the way housing is distributed spatially: an attempt to rebalance state-market relations. The UCPs may be considered a neoliberal approach to restraining urban expansion, since they rely on a financial incentive system that maintains the same housing production model as before. But in this case, rather than simply refraining

from intervening in urban development and housing, the state has redefined its role as being able to create proper conditions for housing markets to work.

Although the UCPs were originally conceived as a housing policy, they constitute one of the major urban growth managements strategies of the past twenty years and have been heralded for their effectiveness by government officials.[3] The scale of their potential impact on urban development in Mexico can be judged from the fact that they are being applied in 384 cities across the country (Monkkonen and Giottonini 2017).

The effectiveness of these policies is currently measured by the government's analysis of the location of subsidised housing production in relation to the UCPs. While the national share of authorised subsidised housing units located outside the UCPs decreased between 2014 and 2019, the majority of the housing developments are to be found in non-urban areas (Zone 3) (CONAVI 2020). This would imply that the policy has not had the desired outcome of directing the location of housing developments to 'better' served areas. This is in part because location within the UCPs does not indicate a high 'quality' of built environment, i.e. urban design standards or proximity to amenities or public transport systems. Thus, the UCPs seem rather to be holding back urban expansion, while there is little to no effort to improve the conditions of the built environment. To date, however, there has been no systematic evaluation of the social and spatial implications of the policy in terms of its ability to contain urban expansion by directing social housing to less distant areas and improving residents' access to jobs and urban amenities. Moreover, the potential of the UCPs to support local urban planning has not been thoroughly researched (see Reyes 2020a).

1.3 Research questions

This research offers such an evaluation. It analyses how the implementation of the UCPs is negotiated by different actors (federal and local government officials and private housing development corporations), at different scales (the Metropolitan Area of Mexico City and three municipalities with the highest number of recently authorised social housing developments) and to different ends (containing urban expansion and prioritising housing development in better served areas).

[3]Presentation by Rosario Robles, Minister for of Agricultural, Urban and Territorial Development, UN Habitat III Regional Conference, Mexico, 18 April 2016.

I explore the potential of using financialised housing as an urban planning tool by looking at the implementation of the UCPs in Mexico and asking the following questions:

1. **What is the logic behind the creation of the UCPs and to what degree has their definition been influenced by other actors?**

   As a seemingly contradictory move to neoliberal rationalities, the implementation of the UCPs implied an increase of state regulation in the market. This highlights the importance of understanding the motivations behind the policy's creation and identifying the different actors involved in its definition. Tracing the policy to its origins allows us to understand its innovative character, particularly as the policy emerged from a housing institution where urban planning skills are more the exception than the norm. In addition, since the policy has been updated several times since its implementation, I seek to understand the opportunities that these updates created for other actors to influence the spatial definition of the UCP zones.

2. **Have the UCPs been effective in containing urban expansion and improving the location of housing?**

   An unavoidable question is whether the UCPs have managed to fulfil their aims of containing urban expansion and improving the location of social housing (e.g. by bringing it closer to jobs and ensuring their access to services). Judging the policy on its own terms allows me to provide valuable evidence of its success or failure in changing urbanisation patterns. The spatial implications of the UCPs should reflect changes in the location of housing developments, particularly those marketed for lower-income populations who would benefit from the subsidies.

3. **How have the developers' market strategies changed as a response to the implementation of the UCPs?**

   If regulation had an effect on the housing market, then we should see a change in the development strategies of the main housing development companies. By tracking their responses to the UCP policy implementation, I aim to illustrate how different types of development companies reacted in different ways. Some became even more successful while others failed to adapt to new restrictions on the location of housing.

4. **How have the local planning officials' development strategies been affected by the implementation of the UCPs?**

   The potential impact that the UCPs could have in urban planning can only be assessed by understanding how local planning officials have received and adapted the UCP policy. How aware are they of the UCPs? What is their perception of the UCPs and whether or not the UCPs have supported urban planning practices in any way? These are relevant questions to ask in trying to understand local planning officials' responses which, in some cases, involved innovative planning practices.

By answering these questions, my intention is to provide evidence of the impacts of the intersection between housing market and regulation. Tracking how space is transformed as a result of this intersection will be a valuable contribution to assess the policy's efficacy and identify possible negative externalities. Looking at the responses from different actors will highlight important shifts in the land-market dynamics as a result of the UCPs implementation and the potential contribution to urban governance offered by using financialised housing to steer urban development.

1.4 Thesis overview

In this thesis, I explore the link between housing financialisation and urban planning by looking at the implementation of the UCPs in Mexico. My aim is to assess the implications of using housing financial regulation as a way to control urban development patterns. To do so I investigate the origins of the policy, its effectiveness to control urban development and the repercussions that using housing as planning has on the roles and strategies played by different actors in the housing and urban planning realm.

Based on literature in urban planning and housing financialisation, in the second chapter I explore the implications of reading the UCPs both as housing and urban planning policy. I trace the links between market and regulation, its evolution through time and the way housing and planning strategies have responded to these transformations of state-market relations in different contexts across the global north and south. I then conceptualise the UCPs as both housing and planning policies. I assess the implications that these conceptual framings have for the way the UCPs may affect urbanisation processes, particularly at the urban peripheries, where time, space and network relations between actors highlight the need for innovative approaches to urban planning (Caldeira 2017). In the last section of the chapter, I introduce the

term ‘peripheral planning’ as a way to conceptualise the UCP policy as an innovative response to the recent transformation of urbanisation processes whereby financialised housing plays a key role in steering future urbanisation patterns.

The third chapter depicts the methodology used to answer my research questions by responding to the conceptual framings stated in the previous chapter. I explain how a multi-method and multi-scale approach helps me provide empirical evidence (both quantitative and qualitative) of the success of the policy and of the different responses from actors involved in housing and urban planning. The chapter ends with a reflection on the limitations of my research methods and my positionality as a researcher.

The fourth chapter sets up the context from which the UCPs emerged, from the political setting and changes in the institutional architecture that allowed the conception of an ‘improvised’ policy. After providing details of how and where subsidies are granted, I document the ways the policy has been negotiated at different moments before, during and after its implementation. I argue that despite these modifications, the policy provided new and more precise ways of reading urbanisation processes in Mexico.

In Chapter 5 I empirically assess the effectiveness of the UCPs in containing urban expansion in the Metropolitan Area of Mexico City. Employing GIS and statistical analysis, my aim is to provide much-needed empirical evidence of the success or failure of the policy, which has been a persistent knowledge gap. My findings reveal that the policy might have helped decelerate urban expansion trends, but only when this was linked to low-income housing developments. These findings also highlight a possible hidden impact of the policy: a change in developers’ preferred market segment as they lose interest in building low-income housing due to the new restrictions on location.

In the sixth chapter I investigate how housing developers navigated the implementation of the UCPs. By outlining the housing development process, I provide evidence of how the policy directly interferes with the source of finance for housing developments, jeopardising the prominent role and the prevalent business model of real estate developers. Despite earlier signs of failure in the prevailing housing development model, I document a diversity of responses from housing developers to the implementation of the UCPs. Those who diversified prevailed, while those with a larger land reserve and who primarily focused on social housing failed to adapt. This brought undesired consequences of the policy, as there was an evident shift in the

developers' relation to land, which resulted in shifting their market strategies towards higher-income segments.

In Chapter 7 I take a step back to evaluate the overall influence of the UCPs in urban planning practices. To do so, I look in detail at three peripheral municipalities of the Metropolitan Area of Mexico City that had contrasting strategies while dealing with the implementation of the UCPs. In one case, the UCPs have served as a guide for the otherwise outdated urban development plans. The other cases, however, revealed a lack of awareness from the municipalities regarding the UCPs and the national housing policy. These findings reveal that while the policy has the potential to act as a bridge between planning strategies at different governmental levels, improving urban governance, not all municipalities have the ability or the willingness to coordinate their strategies.

In the concluding chapter, I reassess my assumptions and state my contributions. The research findings make an important contribution by providing empirical evidence of the consequences of using financialised housing as a tool to steer urban development. This is particularly relevant in contexts—within Mexico and, indeed, elsewhere—where the lack of municipal enforcement skills has allowed the expansion of housing developments in unsuitable areas (Gilbert and De Jong 2015). Beyond informing public policy in Mexico, this research could also make a significant contribution to current scholarship on urban planning and governance in the global south, particularly by introducing the concept of 'peripheral planning' to emphasise the links to housing financialisation, the role of the state and innovative urban planning responses.

2 Housing, planning and urbanisation: intertwined processes

Housing development and urban planning are intertwined processes that lead to different patterns of urbanisation. Created under a legislative and normative umbrella including laws, regulations and policies, housing and urban planning often interact at different levels of government and the relevant policies are often created by different ministries. Yet despite being deeply intertwined, housing and planning policies are rarely conceived in an integrated way. Housing policies often lack a spatial component, while planning policies often fail to include the different temporalities and modalities of housing development processes (Jones and Watkins 2009). This failure to integrate housing and planning has had an impact on urbanisation processes across the global north and south.

The nature of housing and urban policy also follows different rationalities. Housing is often seen as a highly political field (Madden and Marcuse 2016) and housing policy is primarily concerned with ensuring access to decent housing for everyone. Urban planning, being both a field and a discipline, is often considered as a mere normative and technical process (although this does not imply that it cannot be political). Planning follows a rationality of operationalising national economic development and environmental goals as these are scaled-down and materialised by local governments (Murdoch 2000). Despite their conflicting rationalities and scalar differences, housing needs planning to materialise in a way that ensures collective benefits for society. That is not to say that housing cannot happen without planning, and that this would necessarily imply a negative outcome; many unplanned/self-build settlements have proven to have greater spatial quality and have been located closer to the urban core than some planned developments (Eibenschutz and Benlliure 2009). A failure to recognise the relevance of planning in housing, however, has brought many negative consequences such as socio-economic segregation and environmental degradation. Yet the fields of researching housing and planning have remained highly segregated.

Given its multidisciplinary character, housing has generally been studied from a political economy approach that sees structural transformations in housing policy as a vehicle for capital accumulation (Aalbers and Christophers 2014; Aalbers 2016). Neoliberalism, financialisation and securitisation have all played a role in defining contemporary housing policies. Thus, housing studies tend to focus on the macro-economic processes pushing neoliberal housing reforms.

Planning has also been studied from this macro analytical perspective, where the symbiotic relationship between capital investment in the built environment is either regulated or promoted through planning (Harvey 1978). Due to the normative character of planning, however, a larger body of the conceptual work in planning has focused on it either as a process or as a material outcome of urbanisation (Yiftachel 1989; Fainstein 2000). Focusing on urban design and master planning, advocates of new urbanism and sustainable development have sought ways to prescribe the 'best' urban form (Yiftachel 1989). Concerned with the actors, processes and practices involved in urban planning, communicative planners have highlighted the importance of public participation in the decision-making process around urban planning (Healey 1992; Fainstein 2000).

The way planning and housing policies interact with urbanisation processes has been studied from either a housing or an urban planning perspective (Drakakis-Smith 1981; Watson 2009b; Janoschka and Salinas 2017), but few have studied these processes as interrelated (see Caldeira 2017). Urbanisation processes, particularly in the global south, have been seen as an outcome of housing (e.g. population groups looking for ways to solve their housing problems, driving urbanisation). In turn, planning has been seen as a response to urbanisation processes, adopted as a strategy to mitigate their negative externalities (sprawl, inequality, natural resources exploitation) (Watson 2009b).

In order to illustrate the ways in which housing, urban planning and urbanisation processes are intertwined (spatially, temporally and in socio-economic terms), in this thesis I assess the impacts of a policy in Mexico that integrates housing and planning: the Urban Containment Perimeters (UCPs). The UCP policy sits precisely at the intersection between housing and urban planning. It emerged from the housing ministry but, by having a direct impact on urban development, is often misconceived as an urban planning policy. In fact, it has been fiercely criticised for precisely this by those who argue that 'urban growth should be driven by urban policy, and not by a housing policy which pushes families to acquire a house they do not want' (Monkkonen and Giottonini 2017, p. 161). At the same time, the UCPs have been also criticised for lacking engagement with local governments and therefore compromising their autonomy in defining urban policy (Reyes 2020a). So, what are the UCPs? A housing or an urban planning policy? And what are the implications for urbanisation processes of reading them as one or the other?

I chose to frame my conceptual analysis of the UCPs with both housing and planning literature. Framing my analysis with these fields can at times imply taking contradictory epistemological stands—from a constructivist to a poststructuralist position—but it also opens the possibility for new conceptualisations of the policy and highlights its potential. My aim overall is to contribute to new understandings of how housing, planning and urbanisation processes are intertwined and constantly redefining each other.

In the first two sections of this chapter, I examine the links between the market and regulation regarding housing and urban planning policies. I track the historical transformation of state-market relations and their impacts on urbanisation processes, from a neoliberal roll-back to a roll-out of state interventions (Peck and Tickell 2002). I then explore how housing and planning strategies have responded to this transformation in the global north and south, focusing specifically on examining how Mexico has or has not adopted housing and urban planning policies from the global north. At the end of each section, I reflect on how the UCP policy fits the current state-market transformations and what it implies to conceptualise them as housing or planning policy. In the final section, I link both housing and planning frameworks to explore the implications of these market-state relations for urbanisation processes, particularly where they occur at the urban peripheries. Based on Teresa Caldeira's (2017, p. 4) definition of peripheral urbanisation as a 'way of producing space' rather than a particular spatial location, I introduce the concept of 'peripheral planning', which allows me to highlight time, space and network relations between actors that are needed to understand the recently implemented UCPs as an emergent planning technology and to see how the policy responds to contemporary urbanisation processes.

2.1 The view from housing: an emergent financialised housing model

2.1.1 Regulation and the housing market

Overwhelmingly, studies on housing take a structuralist perspective and focus on exploring the links between market and regulation. Because of the recognition of housing as a human right, housing policy has traditionally been studied as a social policy, particularly viewed hand in hand with poverty alleviation (Datta and Jones 2001). Unlike education and health, however, access to housing has rarely been a universal state provision; it has actually been one of the first basic goods for which private institutions intervene in its provision (Clapham 2012). This is due to the character of housing, an expensive immobile good that requires a large proportion

of households' income to be acquired. In most cases, such an expensive purchase would need to depend on financial instruments. At the same time, the state has the responsibility to ensure housing policy's social objective—i.e. secure access to housing for every citizen, which is often achieved through market regulation (Clapham 2012).

The degree of state intervention in the market has been a significant topic of discussion. Neoclassical economists would argue that the market will self-regulate and that housing access would be distributive (Whitehead 2012). Following this line, neoliberalists would argue for a decreased state intervention. But while it is widely accepted that a fully deregulated market would not ensure an equitable distribution of housing, neoliberal policies still largely guide housing policy across the globe (*ibid*).

Although neoliberalism has been a defining feature of state form and its boundaries, it is no longer simply defined in relation to an increase or decrease in state involvement. As a geographically and historically grounded process, neoliberalisation involves not only a change in the amount of state intervention but also in the type of intervention (Peck and Tickell 2002; Ward and England 2008). In this process, which involves both a quantitative and qualitative restructuring, the boundaries between the state, market and civil society are constantly being redefined (Ward and England 2008; Boudreau, Gilbert and Labbé 2016). This reading of neoliberalism is particularly useful in urban studies as housing policy and urban planning involve a constant evaluation and testing of the state's capacity and willingness to intervene, in constant tension with private and social sector forces (Sager 2011; Boudreau *et al.* 2016).

Jamie Peck and Adam Tickell (2002) argue that the state has historically deployed two main approaches towards neoliberalisation, shifting between roll-back and roll-out positions (Peck and Tickell 2002). The first approach, exemplified in the early stages of political intervention by Margaret Thatcher and Ronald Regan during the 1980s, focused on the promotion of free-market policies and the 'roll-back' or retreat of the state (*ibid*). In terms of public housing in Western Europe and the US, this approach reflected the dismantling of social housing and the elimination of rent controls, which resulted in prioritising homeownership over rental housing. Eventually, neoliberalism evolved into a second approach during the 1990s, a 'roll-out' stage in which the state regained influence over social and economic spheres, providing new technologies and institutions of governance that would orchestrate free-market strategies. This stage 'represents *both* the frailty of the neoliberal project *and* its deepening' (Peck and Tickell 2002:290). In this rolled-out stage, the state transforms in order to help mitigate market

contradictions, protecting against and dissipating possible crises that could compromise capital accumulation (Brenner and Theodore 2012).

Although this rolled-out stage attempted to foresee economic crises, its overreliance on finance arguably led to the global financial crisis of 2008 (Heeg *et al.* 2020). One would assume that this would be an alarm for the need to change the economic model, yet the crisis led to an even deeper state roll-out when financial institutions were bailed out by the state in the US and across Europe. In fact, our contemporary society has progressively increased its interactions with finance actors, policies and practices as the state has continued to support financial practices as the main vehicle to achieve economic and social objectives, particularly regarding urbanisation and housing provision. Financialisation has therefore become a defining feature of the state's rolled-out position within neoliberalism (*ibid*).

In the next section, I discuss the influence of financialisation on housing provision, taking different perspectives from the global north and south. The adoption of a financialised housing model in Mexico has led to current urbanisation processes, the negative externalities of which triggered the conception of the UCP policy.

2.1.2 Global financialisation of housing: homeownership (and mortgage debt) for all?

The concept of financialisation has become a vehicle within social sciences to understand the multi-scalar and diverse aspects of our social/economic environment (Aalbers 2019a). Departing from different disciplines, studies on financialisation have gained popularity in the last ten years and, although some consider the concept a vague, all-encompassing, term—like many similar concepts, its flexibility/adaptability provides an opportunity to understand different socio-spatial processes in relation to finance. The focus on financialisation has allowed different understandings of the complex and variegated ways in which neoliberal policies are navigated, implemented and adopted by different groups of actors (Aalbers 2019b). Raquel Rolnik (2013) has identified financialisation as a defining feature of late neoliberalism, particularly when it is studied in regard to housing where 'not only was the state never absent but, more than that, it has always played a central role in the process of commodification and financialization of housing' (Rolnik 2013, p. 1064).

Manuel Aalbers and Brett Christophers (2014) echoed this call, considering housing as a key component of political economy. The number of housing financialisation studies has increased exponentially in the last decade. This recent interest in housing financialisation has expanded

across all corners of the globe, initially focusing on countries in the global north (Aalbers 2017; Romainville 2017; Waldron 2019), and more recently, being used to explain housing and urban conditions in the global south (Sanfelici and Halbert 2014; David 2017; Pereira 2017; Erol 2019).

There are some common features in recent studies on housing financialisation that examine contexts across the global south and north. In general, there is a trend to diverge from macro-economic analysis of financialisation towards a meso-level of analysis. There is a particular focus on policies, regulations and programmes as a way to understand how financialisation is operationalised in different contexts (see Pereira 2017; Waldron 2019). As part of this meso-level of analysis, there is a growing interest in understanding agency across key actors involved in the process of housing financialisation, production and commercialisation (see David 2017; Romainville 2017; Socoloff 2020). This not only includes primary actors such as the government agencies, construction companies and financial actors (both global and local), but also less prominent actors like mid-range bureaucrats, lobbyists or local planning officials. Another commonality across studies on housing financialisation has been the emphasis on the promotion of a particular housing tenure: homeownership (Aalbers 2017). This has implied that indebtedness became a key feature of the contemporary economy as a wider range of the population gained access to debt—and, in some cases, the most vulnerable sector (*ibid*). Thus, the 'socialisation of credit' and the emphasis on homeownership have allowed 'the inclusion of middle- and low-income consumers into financial circuits' and 'the takeover of the housing sector by global finance' (Rolnik 2019, p. 16). Some have called to reduce this emphasis on equating finance with homeownership, while highlighting the need to address finance for different types of tenure—particularly rental or shared housing—that could offer a wider variety of options to the low-income population (Datta and Jones 2001).

There are also some clear differences between housing financialisation in the global north and south. Rodrigo Fernandez and Manuel Aalbers (2019) define financialisation in the global south as 'uneven and combined' at the same time. It is combined in the way that foreign capital interacts with central and domestic banks and non-financialised institutions to create conditions that allow further financialisation of housing, e.g. the influx of foreign capital has allowed an increase in mortgage debt for a wider sector of the population (Fernandez and Aalbers 2019). At the same time, financialisation in the global south is still deeply shaped by patterns of financialisation in the global north, yet there are uneven core-periphery hierarchical market

relations where the periphery's market is defined by foreign currencies that put them in a disadvantaged position (*ibid*). In addition, studies focusing on the geographies of housing show that financialisation in the global north is spatially different from financialisation in the global south (see Sanfelici and Halbert 2014; Romainville 2017; Heeg *et al.* 2020). The geographies of housing financialisation seem to be directly linked with the specific historical and socio-spatial dynamics of each context. For example, financialised companies in Brussels have concentrated high-income developments in the peripheries of the city, while low-income housing tends to be located in central areas (Romainville 2017). At least for countries in Latin America, the pattern is precisely the opposite where lower-income housing projects developed by financialised companies/processes have traditionally been relegated to the peripheries and beyond (Sanfelici and Halbert 2014; Heeg *et al.* 2020). In order to draw valid conclusions about this assertion, however, more research is needed regarding the geographies of housing financialisation. My thesis addresses this need.

As access to debt became possible for new sectors of the population in the form of mortgages, the type of product offered was different across the global north and south. For countries in the global north, this implied new mid- and low-income households transformed from social rental housing tenants into first-time buyers, as in the UK, the Netherlands, Sweden and Germany (Aalbers and Holm 2008; Rolnik 2019). Interpretations of the concept of 'social housing' vary by country across the global north, but variation is more pronounced in the global south. In Latin America, for example, the financialisation of housing for the lower-income population often implied a radical transition from informal accommodation (where residents were either 'owners'[4] or tenants) to new 'social housing' estates. These estates have been privately developed and often partially subsidised by the state, either by directly paying a percentage of the value of the house or by facilitating mortgages at subsidised interest rates (Rolnik 2019).

2.1.3 Imported or emergent policies? Neoliberalisation and financialisation of housing in Latin America and Mexico

To understand this transition towards a new social housing model, it is important to look at the way neoliberalism and financialisation travelled to, adapted and transformed in Latin America.

[4] Despite many residents inhabit land or housing without official property titles, in many cases residents have purchased their land/house by paying fees in the informal market. There is therefore a sense of ownership across the inhabitants, who in many cases have paid considerable amounts of money to 'own' their property, even if this was not done following the legal path (Varley 1985b).

Socio-economic conditions in Latin America were different from Anglo-European countries. Industrialisation processes attracted a massive rural-urban population influx, but the housing needs of those workers were seldom fulfilled by their employers. This resulted in a newly urban population finding accommodation in informal, self-built settlements. In addition, to this day, informal employment has played an important role in the national economy of Latin American countries. These conditions meant that the state played a key role in the process of housing financialisation by providing subsidies to make the lower-income population (or the ones dependent on formal economies) eligible for a mortgage in order to enter the financial circuits of capital. In contrast to common belief, however, the way the state intervened (or restrained from intervening) in housing policy was not always prescribed or transferred by policies of the global north. This is evident in Chile's housing policy.

Some of the earliest neoliberal housing policies were introduced in Chile during Pinochet's dictatorship in the 1970s (Zanetta 2012). In fact, Chile is claimed to be the first country in Latin America where housing policies involving up-front capital subsidies were implemented (Gilbert 2004). This meant a new way of using federal subsidies to promote the financialisation of housing. Instead of providing direct subsidies (grants) to low-income families to acquire state-produced housing, the state will only provide subsidies to allow those families to buy a house produced by the private sector, making it a demand-based subsidy (*ibid*). Chile's housing reform was not therefore directly influenced by multinational agencies, but neoliberal policies seem to have emerged locally (Gilbert 2001; Perreault and Martin 2005; Rolnik 2019). What is relevant is the fact that institutions like the World Bank and InterAmerican Development Bank incorporated Chile's housing policy into their agenda and replicated it in Latin America and beyond, such as in South Africa (Gilbert 2001; Rolnik 2019). This example highlights policy mobility patterns from south-to-south, but also the importance of the presence of key actors or 'policy entrepreneurs' to promote innovative policy reforms (Grindle 2007).

While some neoliberal policies may have been conceived in Latin America, the most recent wave of policies promoting the financialisation of housing certainly took their imprint from the global north. Some authors have discussed a kind of subordinate financialisation in Latin America, as many countries have not fully adopted financialised policies, both in terms of the extent and variety of the policies (Socoloff 2020). This view has been deemed reductionist, however, as there are many countries in the global north with even lower levels of adoption of financialised policies (Fernandez and Aalbers 2019). Instead, others propose that

financialisation has resulted from moments of economic instability (crises) followed by changes in the regulatory framework that allowed new forms of financialisation (Correa, Vidal and Marshall 2013; Heeg *et al.* 2020).

Regardless of whether financialisation in Latin America can accurately be described as 'subordinate', it is clear that a new model of financialised housing has come to revolutionise the options of housing access for the low-income population. In the adoption of this model different patterns of financialisation have been observed across Latin America, depending on the historical and political background of each country. For example, reflecting an authoritarian regime, Chile's housing policy, described above, was based on targeted policies that allowed low-income households to increase their purchasing ability using subsidy vouchers (Cociña 2017). Another example is the case of Brazil, where recent housing policies have reflected the strong democratic and federalist character of the country (Meza, Grin, Fernandes and Abrucio 2019). While progressive urban policies have recently been put forward—like the constitutional recognition of access to land as a social right—Bazil's most ambitious social housing programme, '*Minha Casa, Minha Vida*', has exposed the state's attempt to rescue the construction sector by heavily subsidising privately produced housing which, in combination with practices of exemption, has allowed the construction of housing in places where urban planning rules can be circumvented by justifying the social benefit of housing (Caldeira 2017; Rolnik 2019). These examples highlight different forms of state intervention based on a financialised housing model. And while the financialised housing model may have helped reduce the housing deficit, it has also been associated with high levels of segregation across the region.

In the case of Mexico, the degree to which and the form in which the state has intervened during the processes of neoliberalisation and financialisation have also varied considerably. In terms of regional development, Patricia Martín (2005) has identified different varieties of neoliberalism happening simultaneously in different regions. She analyses two contrasting regions in Mexico—the industrial Monterrey and the impoverished and 'underdeveloped' Oaxaca—where the adoption of neoliberal policies was justified following different discourses, from promising access to global market competition in Monterrey to progress and modernisation in Oaxaca. This example shows how neoliberalism can respond to local social and political conditions as much as external global pressures simultaneously (*ibid*).

In terms of housing, Susanne Heeg, Verónica Ibarra and Alberto Salinas (2020) suggest that different forms of financialisation in Mexico have responded to economic crises, which in turn triggered a series of institutional and regulatory reforms. Based on Peck and Tickle's (2002) conceptualisation of the roll-back/roll-out moments of neoliberalism, the authors define two phases of housing financialisation in Mexico.

2.1.3.1 Phase one: housing and pension funds reforms allowed the creation of a new market

During the first phase of the financialisation of housing, the state took a rolled-back position to allow the creation of what was until then an inconceivable market: homeownership for the low-income population.

Up until the end of the 1990s, the primary housing option for the poorest sector of the population was informal/self-built housing. The government's strategies to support the poor were mainly focused on land regularisation to provide tenure security and supporting the process of consolidation by providing the required infrastructure (García Peralta and Hofer 2006; Schteingart 2015). While the government also developed housing estates focused on the lower (but not lowest) income sector, it never produced enough accommodation to deal with the country's high housing deficit. During the 1990s, an alternative option came to revolutionise the housing options for the poorest sector of the population. Inspired by the Chilean housing model, a new model of mass-produced social housing developments or *conjuntos urbanos* was the result of radical reforms in the housing institutions.

Between the 1960s and 1970s, different federal housing funds were created to provide access to finance for the low- and middle-income sector of the population. These pension and housing funds were funded by long-term saving schemes where mandatory contributions were collected from formal workers, creating a cross-subsidy whereby higher-income workers could facilitate access to credit for lower-income workers (Puebla 2002; Soederberg 2015). These institutions oversaw the entire housing development process, from purchasing land to building and commercialising housing developments, which made the process of producing social housing slow and expensive. During the 1980s financial crisis, some of these funds almost declared bankruptcy (Monkkonen 2011b). This opened an opportunity for Mexico to transform its housing policies, following recommendations of international organisations such as the World Bank and the International Monetary Fund. By 1992, two of the most prominent federal housing funds had begun a structural reform that would effectively transform them into

financial institutions. These reforms implied a reduction of the state's involvement in housing production, and a shift in its role from producer to enabler: it now guarantees financial mechanisms to increase the purchasing capacity of the lower-income population, while the private sector has taken on the responsibility of producing the housing in question (Puebla 2002). Because of this state roll-back, the private sector has been able to define the standards for the quality and the location of new housing estates (Monkkonen 2011b; Heeg *et al.* 2020).

Three decades later, this model of social housing development has played a significant role in defining the conditions for *how* and *where* the low- and mid-income income population can access land and housing in Mexico and, therefore, for the urbanisation process of the nation's cities (García Peralta 2016; Rolnik 2019). Although there has been a reduction in the national housing deficit, the new social housing development model has exacerbated urban expansion and enhanced pre-existing socio-spatial segregation patterns due to its sprawling character (Monkkonen 2012; Solana Oses 2013). In addition, access to mortgages has been restricted to sectors of the population who are formally employed and it has not necessarily focused on the lowest-income population, leaving out 65% of the working population (Pickering 2000).

2.1.3.2 Phase two: securitisation and the creation of a secondary mortgage market

Heeg et al. (2020) have identified a second phase in the financialisation of housing in Mexico where access to the secondary mortgage market was promoted. In this case, the state took a more active position by rolling-out the conditions (new regulations, institutions and mechanisms) that contributed to further financialisation through mortgage securitisation.[5]

Further liberalisation of the mortgage market was justified on the basis of including an underserved mortgage market sector (i.e. the lowest-income sector and those dependent on informal economies). For this purpose, new financial instruments were introduced as a way to gain access to international finance capital from non-bank financial institutions in the US and Canada (Pickering 2000). Mortgages were made available to the lowest-income households and to those dependent on informal economies which, although linked, are not necessarily the same population. These new instruments allowed international capital from financial

[5] Securitisation has been considered an innovative instrument of financialisation, where high-risk and atypical assets (e.g. low-income mortgages) are transformed into tradeable securities with similar characteristics and sold as a portfolio to investors, thus, spreading the risks. In addition, state-owned companies often provide protection against losses arising from mortgage default (Fox Gotham 2009; Soederberg 2015; Reis 2017).

institutions to invest in Mexico's housing sector, without needing to be registered as a bank. Besides these instruments, federal institutions transformed once more from housing development banks to institutions whose primary role was to support secondary mortgage markets by acting as a guarantor to the lenders, making possible the securitisation of the mortgage market (Pickering 2000; Weaver 2007; García Mora and Shabsigh 2016). This meant that the state assumed the guarantor role, while international investors and construction companies continued to work in a risk-free environment. These new instruments and institutions were seen as part of an innovative win-win strategy that would allow international financial capital to 'solve' the housing problem of the underserved market segment (Soederberg 2015). Instead, it has been the large construction companies and the housing finance market that profit the most while state funding remains prominent. In fact, the goal of providing housing for the lowest-income population has not been met, as it is the middle-income sector that most benefits from mortgage securitisation (*ibid*).

The global financial crisis of 2008–2009 exposed the cracks behind securitisation because, particularly in the US and Europe, it was considered the cause of the crisis. Even though the crisis did not affect Mexico's mortgage market growth—as this was largely supported by federal housing funds—it affected low-income households' ability to pay their mortgages, which resulted in high delinquency rates that compromised international investors. But while in the US and Europe the trend was moving away from securitisation, in Mexico the state kept rolling-out the conditions to support it.

Both phases of financialisation discussed in this section have contributed to a massive increase in mortgage loans, reaching and maintain an average annual growth rate of 29% from 1997 to 2008 (López-Silva *et al.* 2011).

2.1.4 The 'perfect' financialised housing model and its consequences

> Financialization processes have thus mutated the roles of states, the origin and purpose of financing, the composition of beneficiaries, and the geographies of housing development (Reyes 2020c, p. 4).

Alejandra Reyes (2020c) effectively summarises what I have discussed so far in this chapter: the ongoing process of housing financialisation caused institutional modifications that changed the role of the state (from a roll-back to a roll-out position), the source of finance (with an increasingly larger share of global financial capital) and the pool of mortgage recipients (progressively widening the income bracket towards the lower-income population, but also

towards higher-income populations) (Reyes 2020c). Because of the focus on a particular housing product, whose characteristics made it possible to be commodified and reproduced on a massive scale, the financialisation of housing has had dramatic impacts on the geographies of the newly built housing developments. The characteristics, underlying processes and outcomes of this housing product in Mexico are described throughout this thesis. Here, I provide a brief overview.

There are two determinant conditions of the recent interest in this housing product: an emphasis on homeownership that is an inherent part of housing financialisation (Aalbers 2017) and a focus on the purchase of newly built housing, rather than on purchasing existing housing stock or investing in housing improvements (Libertun de Duren 2018). These conditions were combined with aspirational desires of social mobility, which had an impact on the architectural characteristics of social housing. Social housing projects transformed from multi-block estates of, typically, four-storey blocks of flats, previously developed by federal housing institutions, to one- or two-storey housing developments resembling those of the middle- and higher-income markets. Gated communities had become increasingly popular among higher-income groups, featuring detached homes in ample surroundings with shared amenities and no intrusive non-residential uses (Inclán Valadez 2013). This model, however, needed to be adapted and scaled down to fit the low-income household's budget (or, more precisely, their mortgage caps). The new social housing model thus resembled these high-income developments in cul-de-sacs where even lower-income developments often included the possibility of a controlled access, or at least a 'statement' gatehouse (García Peralta and Hofer 2006). But dwellings were much smaller and constructed with inferior building materials, with poor quality design, resulting in street after street of identical terraces in a 'cookie-cutter' fashion (Figure 2.1).

Figure 2.1 | Overview of social housing development El Dorado, Huehuetoca, State of Mexico

Source: Author, 2018

With few restrictions on the housing construction quality and adequate spatial distribution, large development companies focused on improving the efficiency of housing production, integrating all the construction processes—from concrete manufacturing to housing construction—and introducing new building technologies—*in situ* concrete casting using standardised steel formwork (Torres 2013). Under this model there was a limited variety of housing typologies (only varying between two- or three-bedroom housing units), which led to homogenised urban environments (Monkkonen 2011b).

The location of such developments responded to two main requirements: a supply of large properties for development and low land prices (Eibenschutz and Goya 2009; Libertun de

Duren 2018). Developers also sought municipalities known for speeding up administrative processes, i.e. building permits and land-use changes (Libertun de Duren 2018). These requirements could only be met in peripheral locations, and even at considerable distances beyond the built-up area, with many developments completely surrounded by fields or open countryside. The developments were mostly built on former agricultural land lacking access to urban services and far from employment hubs.

This social housing development model led to the growth of existing private housing construction companies (and the appearance of new ones) that profited from a secure social housing demand backed up by state housing funds. The model allowed construction companies to build large-scale housing developments, at low cost and over a short period of time, which made social housing development a highly profitable sector. In fact, some companies managed to enter the Mexican stock exchange due to their high profits, which allow them to access long-term funding from global financial capital (García Peralta and Hofer 2006; BBVA Research Mexico 2013; Janoschka and Salinas 2017).

2.1.4.1 Consequences of the financialised housing model

The state-market relations discussed at the beginning of this section illustrated the fragile equilibrium between fostering a profitable economic model while ensuring the social purpose of housing policy is met. This is evident in the case of Mexico, where a lack of regulation both from the federal and local governments concerning the location of social housing projects allowed private developers to dictate their location according to their business model, which resulted in occupying mainly peri- or extra-urban areas where land values were lower than in areas closer to the main built-up area. Although developers were required to provide basic services, such as street paving, water, electricity and sewage, housing developments were often located far from other amenities such as public schools, health care centres, commercial areas and employment hubs (Eibenschutz and Goya 2009). This was exacerbated by inadequate or insufficient public transport alternatives. Most Mexican cities lack mass transportation systems (such as metro and Bus Rapid Transit systems), so residents rely on small independent transport companies that offer an unreliable and inefficient yet expensive service (Esquivel, Maya and Cervantes 2005; Inclán Valadez 2013).

Eventually, the distance of housing from sources of employment, the lack of appropriate services (from water and electricity to public transport) and the low quality of the building

materials created social unrest among the residents (Inclán Valadez 2013; Marosi 2017a). Such conditions have contributed to a high and fast-growing vacancy rate in housing developments, rising from 11% in 2000 to 15% in 2010 (INEGI 2010b; CIDOC and SHF 2014). Both the poor building quality and the developments' peripheral location have been associated with housing vacancies, where direct positive correlations have been found between distance to employment and housing abandonment in Mexico (INFONAVIT 2015 cited in Reyes 2020b). These negative externalities were early signs of the model's failure, yet housing estates have continued to be built in the same type of location, by the same means, to the same poor standards.

2.1.5 The UCPs as a response to financialisation: seeing the UCPs as a housing policy

Foreseeing further consequences of the financialised housing model, the central government has gradually adopted a stronger regulatory position in an attempt to overcome the negative externalities created by the housing model (Inclán Valadez 2013). In 2013, however, efforts to improve the location of social housing estates were reflected in the introduction of the UCPs as part of the housing reform implemented by the newly elected government. The UCPs conditioned the receipt of federal subsidies to the project's location within certain pre-defined areas, which were claimed to have better access to employment and services. This was the first time that a federal housing policy was linked to a spatial or territorial component in such a direct way. Since the policy was applied to 384 cities and metropolitan areas in the country, it was a unique large-scale effort to change urbanisation patterns throughout the country (SEDATU and CONAVI 2015b).

Why would the government introduce restrictions in such a direct way to an apparently profitable housing model? The truth is that the model started to show some cracks already before the implementation of the UCPs. Some publicly traded companies were struggling to keep the pace of sales demanded by their financial commitments as the population became more and more reluctant to take a mortgage for the product they were offering (Marosi 2017b). In addition, it was difficult to deny the visible impact that the housing model had on urban sprawl throughout Mexico, and the increasing housing abandonment rates drew national and international criticism that compromised future financing (Eibenschutz and Goya 2009; SEDESOL 2012; García Mora and Shabsigh 2016).

The idea of implementing regulations in the way the market operated seems contradictory, at least at first sight, to a neoliberal agenda. The character of the UCP policy, however, implies that this regulation may not have been as strict as it appeared. First, the UCPs do not prohibit development as such, but simply provide incentives for developers to build social housing located within certain pre-defined zones. This implies that developers always have the choice to build within the UCPs and apply for subsidies or build outside the UCPs without subsidies. Given that developers focused on social housing often have tight profit margins per unit (as their business model relies on large scale developments), this indicates that they are in practice highly dependent on subsidies to secure their profits from this market tier, so not all developers will be willing or able to build social housing without subsidies. This means that although the UCPs are not restrictive, they may be pushing developers to diversify into other sectors of the housing market, targeting different income groups, that do not depend on subsidies (see Chapter 6 for an assessment of the impact of the UCPs on the housing market).

Second, the way the UCP subsidy zones have evolved through time may have opened the possibility of negotiation between different groups of actors. The UCP subsidy zones (determining the areas that are eligible for subsidies based on an algorithm that classifies the territory according to proximity/access to jobs and services) were updated yearly[6] from the publication of the first version in 2012 up until 2018 (SEDATU and CONAVI 2015b). Such high frequency of updates is uncommon for traditional urban containment strategies, like green belts and urban growth boundaries, which are usually updated every five to ten years (Nelson, Dawkins and Sanchez 2007). Because the UCPs are primarily defined as a housing policy, the subsidy zones (and their updates) were defined at the National Housing Commission (CONAVI) and not the planning ministry. CONAVI has traditionally maintained a close relationship with private developers, as it is the entity in charge of regulating national housing programmes including finance and subsidies, and is therefore the point of contact (and complaint) between developers and the federal government (See Chapter 4 for details on the origins of and negotiating processes around the UCPs).

The non-restrictive and fast-evolving character of the UCPs means that while the state appeared to regain control over the location of social housing estates by conditioning subsidies for housing located within the UCPs—implying what we could call a neoliberal roll-out where the

[6] Except for 2016, when there was no updated version of the UCPs published.

state creates new regulations to sustain the prevailing housing model—the private sector may still have had a privileged negotiating position in defining the UCP zones. Heeg *et al.* have argued, however, that these recently implemented restrictions on the location of housing in Mexico (i.e. the introduction of the UCPs) cannot be identified as a financialised roll-out because they do not directly affect the way housing is financed (Heeg *et al.* 2020). Indeed, the UCPs rely on the same financial model that produced the housing model of the 1990s and 2000s, but I argue that the UCPs may have also affected the process and the products offered in the housing financial market (see Chapter 5). The restrictions on the eligibility of social housing for subsidies based on their location within the UCPs may have implied a challenge to or an opportunity for developers' business model, and their ability to navigate these restrictions may have translated into the success or failure of many development companies (BBVA Research Mexico 2013). This could explain why some of the largest development companies, and the most dependent on the lowest income sector market segment (and therefore on subsidies), have been estimated to be the most affected by the introduction of the UCPs, experiencing foreclosures and even bankruptcy after 2013 (*ibid*).

Reading the UCPs as a housing policy leads us to recognise it as further enabling the prevailing housing model, meaning the UCP policy is still highly neoliberal. While the introduction of the UCPs can be seen as roll-out of state to preserve the financialised housing model, we cannot deny that it was also an attempt to improve the quality of the built environment surrounding social housing projects. This could be considered an effort to reduce urban segregation patterns and would thus qualify the UCP policy as a socially progressive or social redistributive policy. If the UCPs were indeed effective in bringing new social housing projects closer to the existing urban core, this would have a direct impact not only on residents' quality of life, but also on the urbanisation patterns. This is the case particularly if we consider that the financialised housing model has been identified as most responsible for urban expansion throughout Mexican cities since the 1990s (OECD 2015), which highlights the relevance of considering the UCPs not only as a housing policy but also as a potential planning policy.

In this section we have seen how state-market relations have evolved through time, changing the level and type of interaction. Housing policies have responded to this evolution by creating new mechanisms and institutions that accommodate the level and type of interaction between the state and the market. These policies, however, have not been sufficient to ensure the right to housing (and the same minimum standards of housing) for everyone. On the contrary, the

consequences of the financialised housing model have aggravated existing socio-spatial inequalities in urbanisation processes. Throughout the discussion around housing, there is a missing link to planning—particularly in contexts like Mexico. In particular, there is a failure to take greater account of spatial considerations of the consequences of housing policies for the geographies of housing development. Looking at the UCPs from different perspectives may allow us to see the different ways in which the policy responds to this gap, while at the same time offering new ways of responding to urbanisation. In the following section, therefore, I shift the analytical viewpoint to understand the UCPs as a planning policy.

2.2 Planning around a changing role of the state

2.2.1 The evolution of modern urban planning

Like housing, urban planning has reflected a constantly 'changing relationship between the institutions of power and the society and environment'(Gunder, Madanipour and Watson 2017, p. 2). State-market relationships around planning have undergone a particularly clear transformation that reflected the dismantling of the welfare state. As is the case for housing policies, these transformations have been echoed by planning goals, strategies and techniques.

The main aim of twentieth-century urban planning was 'to provide for a spatial structure of activities (or land uses) which in some way is better than the pattern existing without planning' (Hall and Tewdwr-Jones 1975:3). Inherent in this definition was the assumption that planning would always be better than 'no planning'. This view also implied a paternalistic and technocratic role of the state in which its main purpose was to ensure the 'public interest', which was manifested (at least spatially) through urban planning (Gunder *et al.* 2017, p. 3). The planner was acknowledged as an expert and therefore acquired the responsibility to deliver adequate solutions that should reflect the collective needs of society. In this sense, modern planning relied on a search for order, both spatial and social, to be achieved through urban development. To attain this 'order', planning has followed different strategies to accommodate growth. The different ways to conceptualise growth have therefore been a defining element of urban planning practices.

Debates on urban growth management can mostly be grouped into two types of approach to growth: restrictive and pro-growth policies. Modern urban planning involved the most radical strategies to achieve ordered growth, where the state was more present than ever and responded

to the Fordist/industrial economic model. Strict land use zoning helped order the city's living and working functions, while urban planning was the means to achieve healthy and aesthetically pleasing environments. While the early modernist strategies saw growth as a positive asset, the suburban environments created through modern urban planning in the 1960s and 1970s have been associated with the negative effects of urban sprawl (Grant 2017). This led to a series of growth control measures that would set some rules to limit the pace and form of this growth. For example, as one of the earliest forms of urban containment, greenbelts are often traced back to Ebenezer Howard's concept of 'garden cities' that influenced the 1947 Town and Country Planning Act for England and Wales and resulted in greenbelts being established around the countries' main cities (Nelson *et al.* 2007). The simplicity of the greenbelt policy, which defines an area of restricted or prohibited growth surrounding an existing built-up area, has been replicated across the global north and south. Although most of the international examples of greenbelts seem to have succeeded in containing growth, many have also led to the 'leapfrogging' of urban development over the greenbelt and to the escalation of land and property prices inside it, which has created scepticism about the effectiveness of this form of urban containment (Hall 1974; Prior and Raemaekers 2007).

In the 1990s, the trend of New Urbanism emerged out of a concern with the manner and speed of suburban growth and proposed a path to sustainable development that is still now the base for many current urban design and planning policies (MacDonald 2012). Sustainable development is associated with a particular urban form considered more likely to meet collective needs without harming the environment and to preserve natural resources for the benefit of future generations. Since then, urban planning discourses have identified a compact urban form as the most sustainable path to urban development (Neuman 2005; Luque-Ayala and Marvin 2015). In a compact city land is occupied more efficiently than in a sprawling city because population densities are higher, and there is a balanced distribution of residential and non-residential land uses with access to mass public transportation (Jabareen 2006).

It was not until the end of the twentieth century that there was a paradigm shift towards promoting and managing growth instead of simply limiting it (Grant 2017). This was done through strategies promoting growth in targeted areas like strategic planning, urban regeneration projects and the integration of land market mechanisms in planning (e.g. land value capture and development rights). These examples correspond to a post-industrial era in which neoliberal policies are implemented by a corporatist state (Harvey 1989). Going back to

the idea of the different phases of neoliberalism, this period could be identified as roll-back neoliberalism where the state has retreated from planning and its regulatory functions, while the market is believed to have superior capacity in allocating land efficiently (Baeten 2017). In fact, some of the earliest examples of rolled-back neoliberal urban planning appeared in Chile during Augusto Pinochet's administration and were implemented in parallel to the housing reforms described in the previous section. Yet this was not mere coincidence; it represented a systemic effort to link national economic development to urban planning (Baeten 2017). Chile's 1979 National Urban Development Plan changed the nature of development by removing restrictions on access to greenfield land for development. Planning regulation was considered the cause of land scarcity and high land prices. As a result, Chilean cities expanded dramatically, often at the expense of the displacement of informal settlements (*ibid*).

A more recent trend in urban planning has implied a shift from a managerial state to an entrepreneurial state, which has been identified as roll-out neoliberal planning (Harvey 1989; Baeten 2017). Strategies such as city branding, the formation of the creative class and the introduction of information and technology in planning have benefited from a re-introduction of certain regulations by the state to boost economic development and make cities more competitive. The need to reintroduce the state's regulatory powers (in many cases allowing exceptionalism in development) has become a requirement to respond to the contradictions of neoliberal policies (Baeten 2017).

The financial crisis of 2008 appeared to have the potential to contest the viability of the neoliberal project. But with a lack of feasible alternatives, neoliberalism has not only survived the crises but remains the prevailing political economic model across the globe. Roger Keil suggests this is a new phase of 'roll-with-it' neoliberalism, where there is a 'normalization of neoliberal practices and mindsets' (Keil 2009, p. 232). Neoliberalism, however, may not be the only driving force behind urbanisation processes (Le Galès 2016). Despite recognising the varied forms in which the neoliberal paradigm has shaped urbanisation processes in different contexts, the neoliberal macro-scale and hegemonic discourse may fail to explain urbanisation processes beyond Western contexts. A neoliberalist logic may be insufficient to explain urbanisation processes, particularly in countries in the global south where urban governance often involves the interaction of formal and informal governance mechanisms (Le Galès and Vitale 2013; Boudreau 2019). In addition, when it comes to urban policy, its evolution is often simply a response to local problems by local actors who are themselves responding to conflicts

between regulations and institutions that may not necessarily be related to/pushed by neoliberalist logic (Le Galès 2016).

In order to understand the degree to which neoliberalism has or has not affected urban planning policy in the global south, and the way in which it may have done so, it is relevant to trace planning practices across the globe. As we will see in the following section, the need to adapt to a rapidly changing urban environment has demanded new and innovative planning strategies that may not necessarily (or not only) be driven by the neoliberal logic.

2.2.2 Challenges in adapting planning to a rapidly changing environment

Urban planning has remained a highly outdated discipline when it comes to adapting to different contexts. Many of the twentieth-century approaches to urban planning still largely define the planning practices in many cities through the global north and south (Watson 2009a). Meanwhile, urbanisation patterns have accelerated and these modernist and Western-centred initiatives fall short in matching new urbanisation challenges, particularly when applied to countries in the global south.

Although countries in the global south have a long planning tradition that precedes colonial times (e.g. the Aztecs and Mayans had advanced planning techniques that defined their settlements), modern urban planning has been deeply influenced by European planning traditions. That is not to say, however, that countries in the global south have simply copied these policies from the north, without actively adapting and innovating them to respond to local specificities (Ortiz 2012). Policy transfer is often legitimised as the only way to modernity/order and often faces implementation challenges. These challenges are commonly blamed on the lack of financial or technical skills, and less on questioning how appropriate these planning technologies are for the socio-political context. Beyond technical or financial limitations, success in controlling urban development in the global south has been associated with the conditions of the existing 'political bargaining environment' (Goodfellow 2013). In order to assess the degree of success in which urban policies are implemented, one may need to look at a broader political and institutional context and analyse how a particular configuration of power relations may affect policy implementation outcomes.

Vanessa Watson (2009) has studied the limitations of adopting outdated urban planning practices (e.g. zoning and master planning) inspired by the global north in countries in the global south. She highlighted the need to work within an interface of 'conflicting rationalities'

where techno-managerial governance practices collide with marginalised urban populations striving to survive under informality in the global south (Watson 2009a, p. 2267). This highlights an important dilemma that urban planners face in the global south, on the one hand ensuring the collective benefit (using the tools available), and on the other risking harm to the most vulnerable population who generally lack access to those benefits.

That is the case of Mexico, and many Latin American countries, where neoclassicist and modernist European planning influenced the way cities should look. Influenced by Haussmann, Le Corbusier and Cerdá, Mexican cities often depict an 'unfinished, thoughtless and sometimes random' adoption of European planning practices (Gutiérrez-Chaparro 2008, p. 62). A search for order and beauty was expected to be achieved by defining master plans and setting precise and rigid zoning mandates (Gutiérrez-Chaparro 2008). While the European counterparts evolved planning conceptualisation and theories, it is argued that planning in Mexico has remained a static discipline, with a strong emphasis on its normative and regulatory character where the state plays the main role (Aguilar 1991; Gutiérrez-Chaparro 2014).

Industrialisation processes of the mid twentieth century produced unequal regional economic development as the demographic migration concentrated in highly industrialised regions. This meant that the government prioritised economic and social development over urban planning (Gutiérrez-Chaparro 2008). Planning policies were adapted to support these national development priorities, for example by supporting large infrastructure projects and seeking to manage irregular development. The rigidity of planning instruments, however, was only apparent at a conceptual level, while the practice of urban planning has remained rather flexible as it is confronted with the reality of urbanisation processes which are largely driven by irregular development.

2.2.2.1 Spatial redistributive focus

The institutionalisation of planning in Mexico took place with the creation of the General Human Settlements Law in 1976. The publication of this law set the regulatory framework for urban planning in Mexico, requiring for the first time the creation and implementation of different legal and normative planning instruments at different governmental levels (DOF 1976). The Human Settlements law had two reforms (1993, 2016) that, in combination with reforms of the Constitutional Article 115, progressively granted municipalities the autonomy

and responsibility for the definition, creation and implementation of local urban development plans that were previously defined at the State level and only implemented by the municipality.

Throughout the evolution of the Human Settlements Law, and the planning instruments that derived from it, it is evident that urban-regional planning in Mexico has had a predominantly 'spatial' focus. Because of this spatial focus, urban planning has been the instrument by which a reduction in social inequalities is expected as an outcome of reducing spatial inequalities (Aguilar 1991, p. 285). This resonates with criticisms of planning's failure to recognise the socio-spatial dialectic of urbanisation by assuming that space can induce social behaviour, without recognising that space is also socially produced (Soja 1980). In the case of the practice of urban planning in Mexico, this 'spatial' emphasis is also attributed to the fact that most urban planning officials and practitioners have a background in architecture or engineering—in part caused by a relatively young planning education and practice tradition in Mexico (Gutiérrez-Chaparro 2008).

This 'spatial' redistributive focus is reflected in the different instruments implemented across different government levels. For example, the first National Urban Development Plan, published in 1978 (and reviewed every six years at the beginning of a new federal administration) set up the national development strategy. It focused on a spatial redistribution that sought to reduce the primacy of the Metropolitan Area of Mexico City by controlling its urban expansion, and on promoting social and economic development in mid-size cities by turning them into development poles (Aguilar 1991). At the local level, Municipal Urban Development Plans revolve around the definition of urban clusters and of their specific land uses and land reserves for future growth, while the rest of the municipality often falls under general zoning categories of urban and non-urban zones (DOF 2016). This means that there is not only an emphasis on the spatiality of planning, but mainly an emphasis on local urban planning over regional planning.

Given that the degree of urbanisation varies significantly between the more than 2,400 municipalities across the country, the amount of effort implied by producing a plan varies considerably. Inevitably, this means quality also varies considerably. Until recently, clear guidelines for the development of local planning instruments—such as local urban development plans—were still missing. The most recent effort to standardise the development of these plans was introduced in 2017, when the Ministry of Agrarian, Territorial and Urban Development (SEDATU) published an advisory guide for the development of new municipal

plans (SEDATU, SEMARNAT and GIZ 2017). The advisory status of the guidelines means that they have not been adopted as much as needed; most local plans are likely still using outdated guidelines for their definition (Gutiérrez-Chaparro 2008).

2.2.2.2 Urban planning disregarding rural land tenure

The focus of planning has primarily remained on urban land management while most low-income development (both formal and informal) around Mexican cities has traditionally occupied non-urban or rural land. In particular, there is a failure of urban planning to recognise the potential impact of different land tenures on urbanisation processes, and in particular that of *ejido* land.

The ejido is a rural community the benefited from Mexico's agrarian reform. It was endorsed by Article 27 of the 1917 Constitution as the Revolutionary practice of granting rural communities the right to use land taken from the country's *haciendas* for agricultural purposes (Varley 1985a, 1985b). As part of the neoliberalisation of the economy during the 1990s, a reform of Article 27 implied what some consider the privatisation of ejido land. Before the reform, ejido land could not legally be sold, mortgaged or rented, because it was supposed to be preserved for agricultural use by *ejidatarios* and their heirs (Azuela 1987; Vázquez 2004). The reforms of 1992 enabled ejidatarios to agree to remove their individual plots of land within the ejido from this protected tenure status and transfer them into full private ownership, meaning that these plots could be sold or rented to private entities outside the ejido community. The communal land holdings of indigenous communities were subject to a similar tenure status, and their land too could now be taken into individual private ownership, but only if they were first converted to ejido land.

The reform has been analysed from different perspectives by many scholars. Critics of the reform consider the ejidatarios as victims exploited by the private sector (Salinas and Pardo 2018). Other scholars emphasise that ejido land was never public land, and thus, the reform cannot be considered privatisation (Jones and Ward 1998). In practice, ejido land had effectively been privatised—worked as individual holdings—for many decades. The difference is that ejidatarios could now legally sell their individual holdings, once taken into full private ownership; but this does not mean they can create urban housing areas on them without going through the same planning approval as any other developer. This highlights the opportunity

presented by the reform of allowing, not less, but continuing or even greater regulation and control of urban growth by the government (*ibid)*.

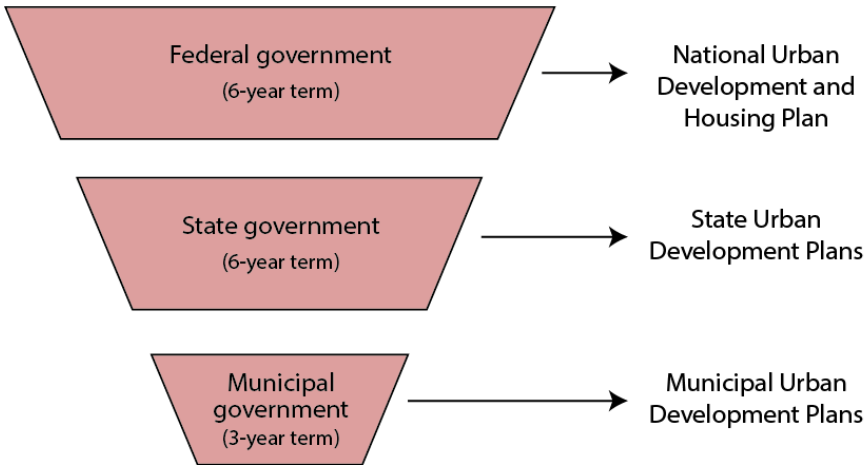
It is commonly asserted that the reform had direct implications for the land market, for various reasons. Not only did the price of ejido property tend to be lower than urban land—as with any agricultural land—but also the large areas of ejido land has, it is claimed, attracted the financialised social housing developments described before (Puebla 2002; García Peralta and Hofer 2006; Olivera 2015; Salinas and Pardo 2018). While widely reproduced, these assertions are accompanied by little, or no, empirical evidence of the contribution of ejido land to financialised housing developments. Empirical evidence has shown, however, that, at least for the Metropolitan Area of Mexico City, recently authorised housing developments are not mostly linked to ejido land (Varley and Salazar 2021).

Whether the reform implied the effective privatisation of the ejido benefiting developers or not, it is clear that it affected the power relations between different actors, while adding new actors to the development processes like private developers and ejidatarios. It is worth pointing out that there is a lack of coordination between the authorities in charge of managing urban and agricultural land. Agricultural land has traditionally been regulated at the federal level, while urban land management has remained the responsibility of local government. This translates into urban planning strategies that disregard the possible impact of ejido land on urbanisation processes.

2.2.2.3 Hierarchical governance structure

Besides the conceptual focus adopted in urban planning and the neglect of ejido land tenure, the existing hierarchical governance architecture makes it even harder to create and implement adequate urban development plans, let alone to propose innovative solutions to urban planning. All three levels of government—national, regional (State) and municipal—are involved in planning in Mexico. They form a hierarchical structure with the federal government at the top, in charge of the national housing and urban planning policies (Figure 2.2). The intermediate level is the State or provincial government, in charge of regional planning policies that should in theory align with the federal ones. Finally, the lowest level is the municipal government, in charge of the definition and implementation of local urban development plans.

Figure 2.2 | Urban planning governance structure in Mexico



Source: Author

The duration of government administrations terms varies between governmental levels. Both the federal and State government administrations have a six-year term, while local government has only a three-year term. This difference has major implications for the effectiveness of urban planning policies, which tend to require a longer implementation time than other kinds of policies. In addition, urban and metropolitan areas in Mexico generally include several municipalities and, in some cases, parts of different States. This is the case for the Metropolitan Area of Mexico City, which includes 76 municipalities belonging to three different States. This implies that different parts of a metropolitan area could have State and Municipal elections in different years, since not all States have the same electoral cycle, meaning that different political parties are in power simultaneously. This highlights an important gap in the current urban governance structure as it fails to represent metropolitan areas. The lack of legally binding metropolitan bodies leaves current coordination efforts between states and municipalities to take place on a purely voluntary basis (Iracheta 2008).

2.2.2.4 An incomplete decentralisation process?

In addition to this governance architecture, issues with developing and implementing plans may be caused by an incomplete decentralisation process that makes local municipalities responsible for urban planning while their budget remains highly dependent on the federal government (Grindle 2007).

Through a series of reforms of the Constitutional Article 115 (the most important of these in 1976, 1983 and 1999), municipal governments were recognised as governmental entities and not only as administrative ones. This implied that municipalities gradually acquired the

authority to implement and manage urban development and, most importantly, gained access to economic resources—such as property tax collection and service payments—and the freedom to decide how to spend them (Rodríguez 1993; Olivera 2005). Municipal governments were already (and still are) in charge of providing, maintaining and operating public services, like the police, solid waste collection and management, cleaning services, public lighting, the water and sewage networks, streets, parks and amenities. After the reforms, they also became responsible for the creation of municipal urban development plans.

Even though municipalities are now entitled to collect taxes, their direct income remains low and they tend to depend on federal or State resources (CMM 2015). The total of external resources received is assigned on a per capita basis, so municipalities have an incentive to encourage population growth to obtain more resources. In addition, municipalities are entitled to keep the income from property taxes collected within the municipality. In combination with the housing transition towards the financialised housing model described above, this contributes to municipal authorities' perception of new social housing developments as a viable option to address their housing deficit, in contrast to informal housing options. Local authorities are frequently unaware of (or indifferent to) the impact such developments have on the financial and administrative stability of the municipality (Eibenschutz and Goya 2009). This is astonishing when we consider that once housing estates are completed, the municipality becomes responsible for the maintenance and running costs of the development, supposedly to be covered by the additional municipal income from property taxes (UN Habitat, UNAM and CONAVI 2012; CIDOC and SHF 2014). In addition, in such a diverse universe of municipalities, decentralisation has been identified as opening opportunities for corruption due to administrative incompetence that may have an impact on land market transactions—both formal and informal (Jones and Ward 1998).

Officially, all municipal urban plans must align with the corresponding planning instrument at the next level of governance, i.e. State or metropolitan plans. In practice, this alignment rarely takes place as it depends on political willingness and on the existence of a higher-level planning instrument. In addition, before becoming official, State and municipal plans need to be submitted for public consultation by being published in the official State gazette. Since municipal plans must align with upper level plans, the State often deliberately delays their publication and therefore their implementation (Olivera 2005).

2.2.2.5 Consequences and the status of local plans

The factors described above—an emphasis on spatial redistributive policies, a neglect of ejido land tenure, a hierarchical governance structure and an incomplete decentralisation process—have led to challenges when attempting to create and implement local urban development plans. By 2017, only 40% of all municipalities in the country had produced a plan (INEGI 2019a), and only 16% of the municipalities forming part of a metropolitan area had such a plan (López-Silva *et al.* 2011). Metropolitan areas have access to special financing mechanisms to develop infrastructure across the municipalities and should therefore have an incentive to update and coordinate the urban development plans of the different municipalities within the metropolitan area (Iracheta and Iracheta 2014).

Even when the plans are updated in accordance with official requirements, municipalities generally only update them to reflect the current urban conditions—i.e. in response to where, in practice, development has taken place in the intervening period (see Chapter 7 for details of the implementation of urban plans). Because of these outdated instruments, the updates simply 'catch-up' with the degree of urbanisation, while there is little emphasis on strategic or future scenario planning.

2.2.3 The UCPs as planning: a response to an outdated planning environment

As we have seen so far in this section, the evolution of urban planning has reflected the different phases of neoliberalism in relation to state intervention: from a rolled-back to rolled-out state, or even seen as roll-with-it neoliberalism. In Mexico this evolution has produced particular forms of urban development, where neoliberal interventions are reflected in large infrastructure projects that have aggravated regional differences across the country (Martin 2005). There are some aspects of planning in Mexico that have remained beyond the influence of neoliberalism. For example, urban planning has remained largely normative, often detached from political or market dynamics (or at least until now), and the provision of basic utilities has remained largely public.

We have also seen how the adoption of conventional planning strategies (mainly Western) has failed to travel and to respond to the urbanisation processes in non-Western contexts. The reasons for this failed adoption have often been identified as lack of implementation skills or even political will. Perhaps one valid explanation, at least in the context of Mexico, seems to

be the persistent disarticulation between planning and the main driver of urbanisation: the housing development process.

In the case of Mexico, the UCPs may offer such a connection between planning and housing policy. The UCPs emerged as an innovative housing policy within a complex, centralised and hierarchical planning process. But where do the UCPs fit within the roll-back/out/with-it neoliberalism? I argue that the UCPs may be considered as part of a roll-with-it neoliberal planning (Keil 2009). Because the policy was defined by the housing ministry, the UCPs attempt to repair urbanisation patterns caused by the financialised housing model. There seems to be acknowledgement that, in order to steer urbanisation processes effectively, there is a need to roll with the prevailing neoliberal housing model which is driving urbanisation patterns.

Until now, the UCPs have mainly been analysed from a housing policy perspective (Monkkonen and Giottonini 2017; Hidalgo *et al.* 2021). They are often dismissed as purely neoliberal instruments that support the prevalent economic model pushing for financialised housing. Viewing the UCPs from a planning perspective, may reveal their potential to influence urban planning, offering a fresh view of non-Western emerging planning strategies. Taking different perspectives when analysing the UCPs, from either the housing or the planning literature, involves thinking about how they may respond to or influence urbanisation processes in a variety of ways. Evaluations of the effectiveness of the UCPs in steering urbanisation processes therefore depend on the perspective one chooses.

The next section looks at how different urbanisation patterns have taken place, and how they have evolved as a result of the transformation of state-market relations (i.e. around the financialisation of housing), particularly regarding the transformation of housing options for the low-income population. In addition, it introduces a new way of reading the UCPs as 'peripheral planning' in relation to how they respond to the transformation of peripheral urbanisation processes.

2.3 Understanding urban transformations through peripheral urbanisation

Although arguably driven by the same market forces, we have seen throughout this chapter that urbanisation processes have taken place in different ways in different contexts. A great body of work has focused on understanding these processes, particularly from the urban periphery, where recent urbanisation processes advance in a faster and more dynamic way than in core urban areas. The definition of periphery has been approached from different perspectives.

Earlier work on peripheral development emphasised the distinction between rural and urban areas (Tacoli 1998). This dichotomy has been contested by recognising the dependency (jobs, services, production) between urban and rural areas and the difficulty of defining them as separate categories, which led to a significant body of work focusing on the intersection between rural and urban. The main issue seems to be how to define the boundaries between these categories. The most recent trend has moved away from this categorical definition, beginning to conceptualise the peripheral in non-spatial terms that emphasise it as a process, a lived experience and a global condition (Caldeira 2017; Keil 2018; Meth, Goodfellow, Todes and Charlton 2021; Lukas and Reis 2022).

Teresa Caldeira (2017, p. 4) introduced the term 'peripheral urbanization' to understand recent urbanisation trends in the global south. Peripheral urbanisation 'does not simply refer to a spatial location in the city—its margins—but rather to a way of producing space that can be anywhere'(Caldeira 2017, p. 4). She identifies certain features that are common to peripheral urbanisation in many countries of the global south, such as Brazil, Turkey, Chile and Mexico. There is a certain temporality in the way residents produce space incrementally, according to their needs and to the availability of resources through different periods of time. This translates to a heterogeneous landscape, where different degrees of urban consolidation make the urban/peri-urban boundaries more diffuse. These processes also respond to interactions with the state which are transversal in nature, as peripheral urbanisation interacts with different layers of legality, regularisation and planning. Finally, these processes involve the creation of new modes of politics emerging as a resistance to the inequalities presented by/reproduced through peripheral urbanisation. Caldeira emphasises that this does not imply a 'southern urbanism' as it varies per case in the region, and similar features can be also observed in the global north (Caldeira 2017).

The concept of peripheral urbanisation has adapted well to the changes in the urban environment that are the product of the market-state relationships outlined in the previous sections. While the concept is commonly associated with irregular settlements, Caldeira has also associated peripheral urbanisation with the creation of new land markets and the expansion of new housing models, like the Mexican financialised housing model (*ibid*).

In order to understand how the UCPs responded to the most recent trend of peripheral urbanisation, it is useful to dissect the key elements behind Caldeira's framework and to explore how the concept can be applied to both self-built settlements and financialised housing

developments (Table 2.1). In Mexico, the financialised housing model implied a change in the temporality of urbanisation as houses were sold as finished products instead of being self-built over a long period of time. The initially homogenous landscape of identical finished houses became heterogeneous with time as inhabitants modified their dwellings in search of extra space or new sources of income, just like self-built peripheral urbanisation. In the financialised housing model, residents interact with the state in an indirect way, as the state is simply the provider of finance for their dwellings and, thus, there is no longer a need to negotiate the provision of infrastructure (although this is not always the case, e.g. when developers have failed to provide basic services to finished housing estates). Similarly, new modes of politics have emerged in the form of activism and social movements by residents dissatisfied with housing quality and poor service provision (Marosi 2012).

Table 2.1 | Different types of peripheral urbanisation

	Irregular/self-built settlements	**Financialised housing developments**
Temporality	Slow, as residents produce space incrementally as they gain access to resources.	Initially fast, as houses are sold as finished products. Later transformed at different temporalities.
Heterogeneity	As resources are made available at different temporalities, there is often a great degree of difference in the building stages of housing.	Initially homogeneous landscape of identical houses. With time, residents transform it to fulfil needs for additional space, expression of identity or sources of income.
Transversal interactions	Different layers of legality, regularisation and planning create transversal interaction between the residents and the state.	Indirect interaction with the state. The state is simply a provider of finance. Interaction between private developers and local state. Interactions between residents and private developers.
New modes of politics	Social organisation emerged as a way to demand provision of services. Subject to clientelistic practices.	Social unrest among residents due to the low-quality housing. Agency emerges to create a collective case against private developers.

Source: Author, adapted from Caldeira (2017)

Conventional planning instruments have been insufficient to cope with the scale and speed of this transformation in the predominant form of urbanisation. As discussed in the previous section, the focus on the 'spatiality' of urbanisation disregards other important aspects such as temporality, heterogeneity, diverse interactions with the state and new modes of politics. As zoning and master planning continue to be widely used, the plans containing these instruments represent the need for substantial technical and financial resources; not every local government is willing (or able) to invest their often limited resources in creating or updating their urban

development plans (Gilbert and De Jong 2015). In addition, the short-term of municipal governments in some countries jeopardises the continuity and survival of the strategies proposed. More importantly, the land uses defined in these plans are not only unlikely to represent reality (e.g. they are often outdated, and ignore the presence of irregular settlements), but they are also easy to manipulate by opaque processes of land use change requests (Eibenschutz and Goya 2009).

2.3.1 Seeing the UCPs as 'peripheral planning'

Following Caldeira's call to 'understand peripheral urbanization as a set of interrelated processes to formulate not only better analyses and theories, but also better urban and planning practices'(Caldeira 2017, p. 4), I look at how the UCPs responded to the transformation of peripheral urbanisation in an unconventional way: by using housing financial incentives to steer urban development. Unlike other housing policies, the UCPs have a strong spatial component that determines the zones that are eligible for federal subsidies. These zones are defined using an algorithm that classifies the territory in relation to different degrees of urbanisation (see Chapter 4 for the technical details of this definition). The three UCP zones include: fully urbanised zones in proximity to jobs (Zone 1), semi-urbanised zones with access to basic services (Zone 2); and areas adjacent to urban or semi-urban zones (Zone 3). These zones define the maps—the spatial component of the policy—against which private land reserves are compared to assess their eligibility to federal subsidies for affordable housing.

Despite being 'spatially' focused, like the traditional planning instruments in Mexico, the UCPs have certain characteristics that make them unique. Although conceived as a housing policy, viewing the UCPs as a planning instrument may highlight their potential to respond to recent transformations in urbanisation. I argue that the UCPs responded to the conditions of peripheral urbanisation in the following ways.

First, the UCP policy could be successful in keeping new urban development within the pre-defined UCP zones precisely because they incorporate the temporality of urbanisation processes in their definition, which allows them to respond rapidly to changes in the built environment (even more so than local planning instruments) (Table 2.2). Because the UCPs are not planning instruments, their implementation happens quickly. Updates are developed by the National Housing Commission (CONAVI), and they have happened almost every year since its first version in 2013. Through these updates, the different UCP zones have been able

to reflect a closer picture of the current urban conditions as more data becomes available. The simplicity of their algorithms means that with each update, a new set of UCPs is available for 384 cities in the country.

Table 2.2 | Conventional planning vs. peripheral planning

	Conventional planning	Peripheral planning through the UCPs
Temporality	Long-term. Deprecated. Static.	Fast. Constantly updated. Flexible.
Heterogeneity	Traditionally based on zoning and master planning. Land use zones as homogeneous areas. Negates diversity of urbanisation. Often negates irregular settlements and newly developed formal social housing.	Based on proximity to employment and access to basic services. Encompass heterogeneous landscape with different degrees of urbanisation. May include formal social housing or consolidated irregular settlements.
Transversal interactions	In theory, multi-level governmental coordination. In practice, policies rarely align. Open for public participation (though this is often just to tick the box). Dislocation between municipalities of the same Metro Area. Plan often modified by interaction between developers and municipalities.	No interaction with the local government required. Negotiation with private developers. Captures the cities' entire urban fabric, without distinguishing political boundaries of different municipalities, which could improve intermunicipal coordination.
New modes of politics	Normative instrument, rarely political.	Used as political instrument by federal government to claim improved quality in the location of housing while it facilitated access to international finance for sustainable development.

Source: Author, based on Caldeira's concept 'peripheral urbanization' (2017, p. 4)

Second, by reducing urbanisation to its most basic elements (i.e. defining it in terms of proximity to jobs and access to basic services), the UCPs could recognise the heterogeneity of peripheral urbanisation. Because of its methodology for the definition of the UCP zones, boundaries between different urbanisation patterns are blurred, which could allow planning strategies to respond to the complexities of peripheral urbanisation discussed in Table 2.1. As long as a certain concentration of jobs is captured by official data sources (and this can include formal or informal economic activity), this will be incorporated in the UCP zones. The same would apply to areas with access to basic services, like water and sanitation. Even self-built settlements that have consolidated through time and negotiated access to these services would be considered within the UCPs, regardless of the existence of property titles. This means that the heterogeneous landscape of urbanisation may be captured by the UCPs: from self-built consolidated housing to privately developed estates.

Third, because of the flexible and fast-evolving character of the UCPs, transversal interactions may take place before, during and after the implementation of the policy. These interactions may happen between different actors but are likely to happen primarily between private developers and federal government officials and they may have a direct effect on the constant redefinition of the policy. The policy may also trigger interactions between financial actors (e.g. banks) and developers, as banks may decide to adopt the UCPs as a way to define the financial viability of a project. The UCP policy may also promote interactions between federal and local governments, but in order to improve local urban governance, these interactions must be aware of existing imbalances in power relations (where the federal government might compromise the local government's autonomy regarding urban planning).

Finally, the UCPs may allow new modes of politics around urban planning. Conventional urban planning has been depoliticised in favour of allowing consensus building and democratisation (Boudreau 2017). The UCPs, however, may be considered political instruments. They have allowed the federal government to claim that it has resolved the negative externalities from the financialised housing model to the extent that it asserted in 2016 that most of the new housing developments were located within urban areas with access to employment and services.[7] This political use of the UCPs may also help secure further access to international finance focused on investing in sustainable development (for similar examples on green municipal bonds see Hilbrandt and Grubbauer 2020). In addition, even when the financialised housing model has seen a rise in social movements driven by a discontent with housing conditions, the way the UCPs are created has made them invisible to many actors, namely civil society, and to its potential contestation by political movements. While conventional urban development plans need to be submitted for public consultation before being authorised and implemented, the UCPs bypass this requirement because they are not urban development plans and because they are created by the federal government.

By considering UCPs a form of peripheral planning, we are able to see their potential to respond to current processes of peripheral urbanisation. The notion of peripheral planning can help us conceptualise emergent planning practices as an alternative to conventional planning. Peripheral planning maintains a sense of contingency that is often needed to respond to the complexity of urbanisation processes in the global south (with its heterogeneity, different

[7] Presentation by Rosario Robles, former Minister for Agricultural, Territorial and Urban Development, UN Habitat III Regional Conference, Toluca, 18 April 2016.

temporalities and the complex interactions and modes of politics around them), where urban development is often driven by a mix of formal/informal forces and by a collective of actors constantly redefining the power relations between each other. Flexible planning structures are therefore needed to respond rapidly to unforeseen or unanticipated urbanisation processes. In the case of the UCPs, the notion of peripheral planning helps us recognise the defacto drivers of urbanisation—i.e. financialised housing development—that existing planning instruments failed to include. While officially the responsibility for urban planning remains with local government, decisions made by federal actors (in coordination with private actors) may be the ultimate drivers of urban development. In this sense, peripheral planning could facilitate 'real' politics that respond to actual governance structures (Michelutti and Smith 2014). This may, of course, present a risk of overriding existing participation mechanisms and political engagement with civil society.

2.4 Conclusion

In this chapter I have explored the lack of articulation between housing, urban planning and the implications for urbanisation processes.

The evolution of state-market relations (from a roll-back to a roll-out or roll-with-it position) has affected these processes in similar ways, where housing and planning policies have reflected an initial phase of reduced state intervention, followed by a second phase in which the state creates the conditions (through regulation, and in some cases regulatory exceptions) for the market to function. As housing and planning policies have travelled to different contexts, they have been adopted in different ways and to different degrees, with different implications for urbanisations processes. In housing, some policies have emerged from the south and travelled within the south (e.g. the Chilean social housing model travelling to Mexico). As these housing policies have been adapted for Mexico, for example, they have created a unique financialised housing model that has—with many negative consequences—transformed social housing into a profitable model. In planning, urban policy still very much reflects the modern European school (largely based on zoning and master planning), while there has been less apparent innovation from the south. As we have seen for countries like Mexico, conventional urban planning has been unable to respond to a rapidly changing urban environment that involves a complex combination of formal and informal development, urbanisation and economic changes. Overall, we have seen that the lack of articulation between housing and planning is still an issue. Housing often fails to take proper account of the

implications that the spatial consequences of housing policies have for urbanisation processes, while planning tends to rely too heavily on spatial conceptualisation or redistributive approaches, without recognising the complex temporalities and modalities of housing.

I use the UCPs as way to link housing and planning processes and to understand their impacts on urbanisation processes. I have adopted two different viewpoints from which to understand the introduction of the UCPs: both as a housing and a planning policy. Seeing the UCPs as a housing policy implies recognising them as a policy that supports the financialised housing model where the state attempts to minimise its negative externalities just enough to keep that model afloat. Seeing the UCPs as peripheral planning implies recognising them as an innovative strategy to steer urbanisation processes, while emerging within a complex institutional context where incomplete decentralisation of governance has obstructed urban planning implementation. While this view could risk overriding local urban governance structures and processes, the UCPs could be used as a way to enforce some aspects of urban planning as they use financial incentives (i.e. federal housing subsidies) to steer urbanisation. In this way, the UCPs could still be considered financialised or neoliberal planning as they go beyond a state roll-back or roll-out position, and instead adopt a roll-with-it neoliberal position (Keil 2009).

The UCPs are therefore an attempt to link federal housing policies with local urban development, implying both a vertical and horizontal link. There is a vertical link in the sense that the UCPs bypass the limitations of this incomplete decentralisation of urban planning (in the sense that local governments have the responsibility but not the means to achieve it), and even profit from it, by granting more weight to the federal state in urban planning decisions. The UCPs may also forge a horizontal link across ministries because they originated from the housing ministry, and not from planning. As we have seen, housing policies are often dislocated from urban planning, while they are intertwined processes that define urbanisation. This makes the UCPs an important bond between housing objectives and planning outcomes.

In sum, different rationalities in both housing and planning fields are helpful to understand where the policy came from, what it was responding to and what its potential is to steer urban development. The next chapter proposes a methodology and research design to assess the implications of reading the UCPs both as housing and urban planning instruments.

3 Methodology and research design

There are different ways to understand the implications of using housing as a means to achieve urban planning ends. By choosing the Urban Containment Perimeters (UCPs) as the main case study of my research, I was immediately bounded to perform a policy analysis. But, as discussed in the previous chapter, I took different conceptual standpoints that imply different research designs to assess the UCPs as both housing and planning policy. Using an analytical framework based on the concept of 'peripheral planning' I was able to interpret data from multiple sources using multiple methods commonly used in the fields of housing and urban planning. The fact that there are very few examples of research assessing the effectiveness of the UCPs implies that any analysis that adds up to an evaluation of the policy would be a contribution to the field of urban planning and housing policies in Mexico.

In this chapter, I outline the methodological strategies I used to understand the potential of using financialised housing as urban planning. After reviewing the methods employed in related studies, I outline my research approach and analytical framework. This is followed by an overview of the combination of research methods and data collection used to answer my research sub-questions, which eventually became my empirical chapters. Finally, I reflect on the limitations of my chosen methods and on the ethical considerations of my research.

3.1 Positionality and epistemological standpoint

Having been trained as an architect and having worked as an urban and housing policy advisor for many years before starting my PhD I had a strong practice-based approach to research. I was used to performing traditional policy analysis where the benefits and drawbacks of a policy are numerically quantified and presented in an objective manner to policymakers (Durning 1999). As I started my PhD, I was soon confronted with different approaches to research where the main aim is not to provide specific and clear policy advice, but to understand, document and reflect critically on the processes behind a specific phenomenon. My original rather positivistic perspective was therefore confronted with critical theory and social constructivism. Instead of having a dualistic conception of the researcher as detached from the object in search of the truth, these paradigms place the researcher and the object in dialogue while emphasising the historical context and the local and specific realities in which knowledge is produced (Guba and Lincoln 1994). In constructivism I found a way to interpret the views of actors and the processes involved in policy creation and implementation, where knowledge is recognised as

something created from the ground up. At the same time, and perhaps due to my background, I could not detach from the urge to find concrete and quantifiable evidence of the outcome of the policy in question.

While attempting to determine the adequate epistemological standpoint from which to define my methodological approach, I found in pragmatism a middle-ground alternative as a way of understanding knowledge 'as being both constructed *and* based on the reality of the world we experience and live in' (Johnson and Onwuegbuzie 2004, p. 18, original emphasis). By focusing analytically on my research questions, I was able to introduce a combination of methods that answered them in the best possible way while avoiding dualisms between quantitative and qualitative research (Creswell 2003).

3.2 Methods in related studies

There is a vast body of research focusing on housing policy in Mexico. Initially focusing on self-built housing and informality, more recent scholarship on housing discusses the social housing model implemented since the 1990s. There are only a few examples of studies linking housing and planning policies, while most attention has been given to housing in relation to urban growth. The methodological approaches vary, but most take a positivist or critical theory perspective, relying primarily on the use of quantitative or mixed methods and, to a lesser extent, qualitative methods.

3.2.1 Research on social housing, urban planning and urbanisation in Mexico

Using a qualitative set of methods, many researchers have focused on institutional and macro-economic processes in relation to the evolution of social housing policy in Mexico (Puebla 2002; García Peralta and Hofer 2006; García Peralta 2016). Nora Libertun de Duren (2018) has used semi-structured surveys and in-depth interviews to investigate the rationality behind private developers' choice of location for the development of social housing. Some doctoral theses on social housing developments have combined visual analysis of architectural and urban design with ethnographic methods. These include a thesis on Tizayuca (von Wissel 2016) —the only municipality of the Metropolitan Area of Mexico City located in the state of Hidalgo— and ethnographic work on a social housing development in Cuernavaca, Morelos (Inclán Valadez 2013).

There has been also an attempt to understand the geographies of different types of housing. A mix of quantitative methods has been used to classify urban morphology and socio-demographic characteristics of different housing developments, particularly in the Metropolitan Area of Mexico City. Priscilla Connolly uses statistical analysis of census data and a geospatial classification to identify different settlement types for 2005, including variables of income, settlement age and stage of formalisation that range from irregular settlements to social housing developments (Connolly 2005, 2009).[8] Emilio Duhau and Angela Giglia (2008) complemented Connolly's classification with a cluster analysis of socio-economic stratification, showing that the settlement types correlate only weakly with income.

Many studies have been concerned with analysing and quantifying urban growth in Mexico. Methods used to quantify urban growth include longitudinal analysis of the cities' urban footprint and population data (SEDESOL 2012; Treviño 2018). A few studies have used satellite imagery to classify different types of development. Paavo Monkkonen (2008) uses Google Earth imagery and GIS analysis to assess the type of urban growth for six Mexican cities, but he finds that online satellite images based on Google Earth tend to be inaccurate in their dates of publication (Monkkonen 2008). To overcome this, other authors have relied on data from international sources such as the Global Human Settlement Layer to create urban growth simulation models (Pérez-Denicia, Ochoa-Sosa and Díaz-Azcunaga 2019). [9] The authors apply automated methods to this and other databases to simulate land use coverage changes and their associated densities for the Metropolitan Area of Mexico City. Although this model allows one to calculate past and simulate future urban growth patterns, the level of the resolution (a 1km grid) remains too large to depict finer grain changes in urbanisation patterns.

Other studies have looked at urban growth across Mexican cities in relation to housing finance and socio-spatial segregation (Monkkonen 2012; Monkkonen, Comandon, Montejano and Guerra 2018). These studies used different quantitative methods including geospatial analysis and statistical analysis of official databases (e.g. household income, housing typologies, access to jobs and education). Another example is the work of Roberto Eibenschutz and Carlos Goya (2009) who undertook an analysis of 100 housing developments drawn from a representative

[8] These typologies include historic towns, conurbated towns, subsidised housing projects, middle- and high-income residential developments, irregular settlements and conurbated and non-conurbated villages (Connolly 2005, 2009).

[9] Created by the European Union, the GHSL combines satellite imagery with census data to estimate built-up area, creating a spatial layer across the globe.

sample of 21 Mexican cities. In addition to geospatial analysis of location and development size, the authors used surveys on the ground to explore housing developments' characteristics in terms of quality of the surroundings, distance to city centre and building quality.

Focusing on the Metropolitan Area of Mexico City, several studies have analysed the difference between core and periphery by studying demographic migration patterns (Salinas and Soto 2019). Jaime Sobrino (2003) has developed a functional classification for the municipalities denoting centrality and economic dependency on the urban core, which has been widely adopted (Sobrino 2003, 2007; Isunza 2007; Toscana and Pimienta 2018).

References for studies focusing on urban planning in Mexico are less prolific than those regarding housing. Most attention has been given to conceptual and analytical readings of spatial and regional planning (Aguilar 1991; Sánchez, Bocco and Casado 2013; Gutiérrez-Chaparro 2014). A large number of these studies take the Metropolitan Area of Mexico City as a case for studying metropolitan urban governance (Duhau 1988; Salinas 2017). Due to its normative character, the common method for researching urban planning is through the analysis of secondary documents like planning instruments, laws and regulations. Some researchers have performed quantitative data analysis to assess the urban management and financial capacity of local governments (Duhau 1988; Isunza and Méndez 2011).

Few researchers have investigated the link between urban planning and housing. Analysing regularisation processes of housing settlements located in conservation areas in Mexico City, Priscilla Connolly and Jill Wigle (2017, p. 195) focused on how urban planning practices—supported by digital spatial technologies—have discretionally defined the rationale of informality and fabricated state responses in the form or regularisation. These types of studies not only highlight the social and political agenda behind the conceptualisation of urban policy, but also the complex governance structures that interfere with housing and urban planning.

3.2.2 Research on the Urban Containment Perimeters

Since I began my PhD in 2016, there has been an increasing number of studies explicitly focusing on the UCPs. The first documented analysis of the UCPs was carried out by Paavo Monkkonen and Paloma Giottonini (2017). It includes an analysis of national housing mortgages by UCP zones and, taking the explanatory case of Tijuana, the authors use satellite imagery to identify visually the evolution through time of different versions of the UCPs. The authors question the effectiveness of the UCPs due to their flexible character and even suggest

that the policy might be harmful for urban development by promoting urban growth in undesired areas (Monkkonen and Giottonini 2017). This thesis provides much needed empirical evidence to back up or contest these statements.

Some examples of the conceptualisation of the UCPs have traced their links to modern European planning and identified similar policies implemented in Latin America. Melesio Rivero and colleagues attempted to make a conceptual analysis of the UCPs in relation to the urban principles defined by the Spanish urban planner Ildefonso Cerdá (Rivero, Moreno and Velázquez 2018). Unfortunately, the authors do not offer critical reflections on their analysis and disregard the role, for example, that colonialism has played in the adoption of imported urban planning policies that define current planning practices in Latin America (Ortiz 2012; Angotti and Irazábal 2017). More recently, a study performed a comparative analysis of the location-based subsidy policies (including the UCPs) between Mexico and Chile (Hidalgo *et al.* 2021). The authors conducted a policy document analysis, tracing back the evolution of housing policies in both countries and suggesting certain parallels in approaches for using location-based housing subsidies.

There are only a few examples of work that focus specifically on the UCPs and local urban planning. Alejandra Reyes (2020a) offers a broad overview of the impact of the UCPs on urban governance structures. She performed data and spatial analysis and a survey, conducted in municipalities of fourteen metropolitan areas across Mexico (excluding the Metropolitan Area of Mexico City). The survey results point to the negative perception of local government officials regarding the effectiveness of the UCPs, but show that they recognise the UCPs' partial ability to aid local urban planning. We should keep in mind, however, that the sample size of the survey (only 22 participants) and the variety of the sample (a mix of States and municipalities of rather contrasting features) make the generalisations of these findings problematic. Despite these limitations, Reyes highlights the lack of local consultation on the definition of the UCPs, which depicts strong administrative centralisation (Reyes 2020a). The second example is a master's thesis by José Augusto Martínez (2018) who uses a mixed-methods approach of interviews and data analysis to compare the efficacy of the UCPs with the existence of strong local planning institutes in the state of Guanajuato.

This review of existing work on the UCPs has pointed out certain opportunities for future research. There has not been an assessment of the impact the UCPs on the production of housing at a national level (Monkkonen and Giottonini 2017). While some studies have

approached a wider sample of metropolitan areas, most of them have focused on one city. As we have seen, although there has been a lot of research in housing and planning that has focused on the Metropolitan Area of Mexico City, there has been no overall assessment of the impact of the UCPs on this case study. In addition, no studies have traced the UCP policy to its origins to document the logics behind its conceptualisation, and there is a lack of empirical evidence—based on both quantitative and qualitative methods—to prove the policy's efficacy and implications for urban planning. Finally, and most importantly, most of the studies have analysed the UCPs either as a housing policy or as a planning policy. By looking at the policy as both housing and planning, I intend to contribute to the body of work on the UCPs as described in the following sections.

3.3 My approach: multiple scales and multiple methods

Based on my positionality and the existing scholarship, I considered that I needed to approach my research in two ways. First, I needed to contribute to the evidence of the success or failure of the UCP policy in achieving its main aims of containing urban expansion and improving the location of housing. Second, I needed to provide empirical evidence of the narratives behind the origins of the policy, the processes it intervened with and the responses to its implementation from different groups of actors. I therefore used a mixed-methods approach to respond to these considerations by measuring the impact of the policy and by embodying the narratives of the processes, actors and networks behind its implementation.

In general, there is a move away from the dualism between quantitative versus qualitative methods, as most recent research tends to be primarily one or the other, but little research is *solely* quantitative or qualitative (Creswell 2003). Using a mixed-methods approach involves certain benefits and drawbacks. Purists would argue that we should not mix qualitative and quantitative methods because they can contradict our epistemological standpoints, for example from positivistic to constructivist or post-structuralist epistemologies. But a new paradigm is in the making where mixed methods offer the opportunity to overcome this dualism. Pragmatism offers a way for the researcher to focus on answering the research questions in the best way possible (Creswell 2003; Johnson and Onwuegbuzie 2004). One of the weaknesses of using mixed methods as a sole researcher is that the level of detail in collecting data, learning the methods and performing the analysis that combines both quantitative and qualitative findings is restricted by the time and resources available (Johnson and Onwuegbuzie 2004). Nonetheless, using mixed methods allows me to combine the high level of detail and

contextualisation of qualitative methods with robust numerical analyses of quantitative methods that facilitate grounded generalisations. Table 3.1 summarises my research sub-questions, the scale of analysis, the research methods and the data sources I used.

Table 3.1 | Research questions, methods and data sources

Main research question: what is the potential of using financialised housing as urban planning?				
	Research sub-questions	**Scale of analysis**	**Research methods**	**Data**
Chapter 4	What is the logic behind the creation of the UCPs? How have the UCPs been influenced by other actors?	National	**Qualitative** Document analysis, Thematic analysis of interview material Case studies, Field work, photographic documentation **Quantitative** Geospatial analysis (GIS) Statistical analysis (descriptive)	**Primary data** Material from semi-structured interviews with federal and local planning officials, housing developers and financial advisors **Secondary data** Normative, legal and financial reports Official housing and population census data, UCP policy documentation, satellite imagery Newspaper articles
Chapter 5	Have the UCPs been effective in containing urban expansion and improving the location of housing?	Metro Area of Mexico City, State of Mexico		
Chapter 6	How have developers' market strategies changed as a response to the implementation of the UCPs?	National, Case study developers (ARA, GEO, Vinte)		
Chapter 7	How have local planning officials' development strategies been affected by the implementation of the UCPs?	National, State of Mexico, Case study municipalities (Huehuetoca, Zumpango and Tecámac)		

Source: Author

3.3.1 Geographical scales of analysis

Besides the use of different methods, different analytical scales allowed me to answer my research questions from different perspectives. Due to the character of the UCP policy, defined by the federal government and applied to 384 cities across Mexico, the national scale allowed me to understand the logic behind the emergence of the UCPs and to capture the ways in which the policy has been influenced by different actors (Table 3.1 and Chapter 4).

At the same time, assessing the success of the policy of such magnitude would be difficult without compromising the level of detail of my observations and analysis. I therefore chose to focus on the Metropolitan Area of Mexico City to assess the success of the policy in containing urban expansion (Table 3.1 and Chapter 5). There are several reasons that justify my choice.

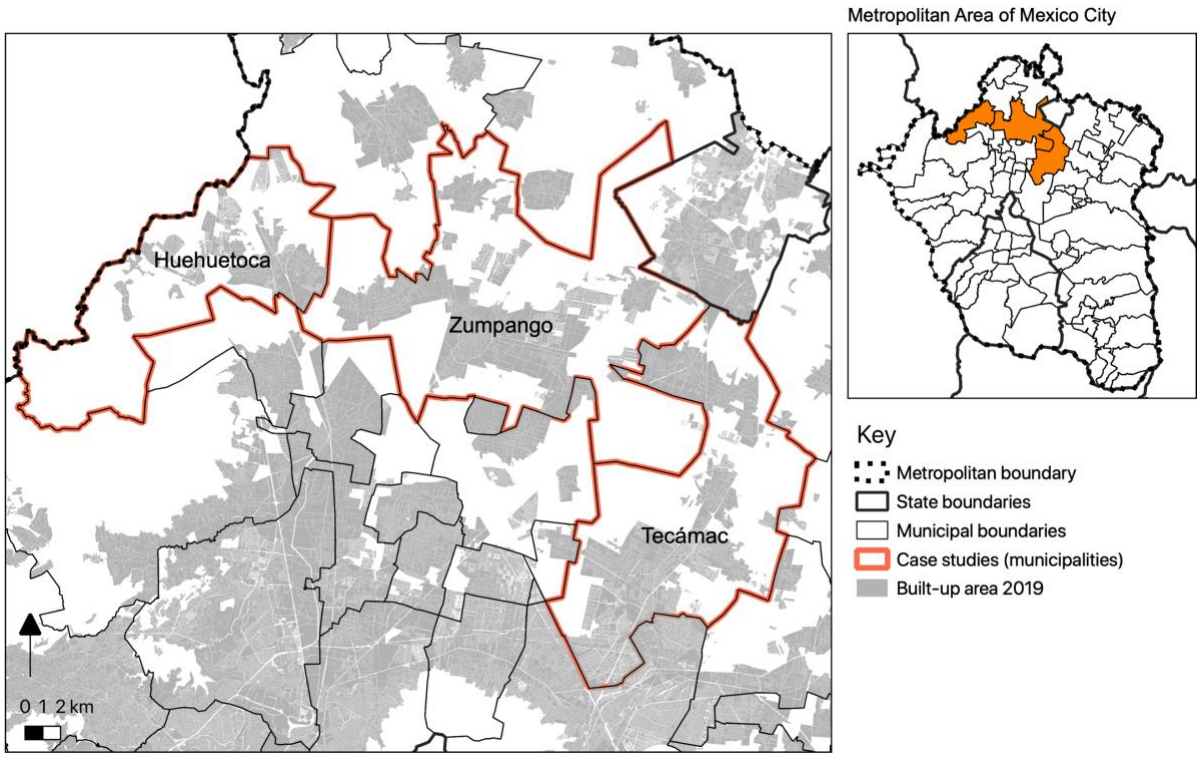
First, like most other cities in Mexico, the Metropolitan Area of Mexico City has witnessed not only the rise of social housing developments on a large scale, but also the urban expansion patterns associated with this housing model (Suárez and Delgado 2007; Eibenschutz and Goya 2009; SEDESOL 2012; Treviño 2018). There is also more literature (both primary and secondary) available on the Metropolitan Area of Mexico City than on other cities in the country, which offers a detailed contextual background. Second, being a metropolitan area with over 21 million inhabitants (as of 2010) makes it the largest and most diverse example where the UCP policy has been applied (INEGI 2010b). In addition, the metropolitan urban area extends beyond the political boundaries of Mexico City (formerly Federal District, now CDMX) into the State of Mexico and, most recently, Hidalgo.[10] These States, as well as their respective municipalities, are often governed by different political parties, implying that there is often a lack of interstate and intermunicipal coordination (Salinas 2017). This makes the Metropolitan Area of Mexico City the most complex example of urban governance in Mexico, which serves as a testing ground for the potential of the UCPs in overcoming a lack of coordination in urban planning and housing policy. Fourth, most federal institutions are located in Mexico City, including the National Housing Commission (CONAVI) and the Ministry of Agrarian, Territorial and Urban Development (SEDATU), which were key institutions in the creation of the UCPs. This made the selection of the metropolitan area convenient to access a large proportion of the participants for my research. Studying the city in which these institutions are based also highlighted the potential impact that context has on the production of knowledge. Given that these federal institutions are in Mexico City, it is more likely that the decisions taken by policymakers have been influenced by their local context and knowledge of the city they live in. Finally, having lived and worked there for most of my life I am familiar with the local context. The Metropolitan Area of Mexico City has been the focus of my professional and academic research since 2007.

The smallest geographical scale of analysis used is the municipality, which helped me assess the responses to the UCPs implementation from local planning officials (Table 3.1 and Chapter 7). The northern sector of the metropolitan area, in the State of Mexico, is the one that has experienced the greatest increase in housing developments and growth in the built-up area occupied by new housing developments from 2000–2010 (Montejano, Caudillo and Cervantes

[10] The Metropolitan Area of Mexico City is composed of the sixteen municipalities of Mexico City (formerly DF), plus 59 belonging to the State of Mexico and one to the State of Hidalgo.

2018). Three of the municipalities in this sector were selected as case studies because they have had particularly high rates of land consumption associated with new housing developments, namely Huehuetoca, Tecámac and Zumpango (see Figure 3.1 and Table 3.2). These municipalities, pertaining to the Metropolitan Area of Mexico City, were also part of the regional development strategy 'Bicentennial Cities' launched by the State of Mexico government to promote regional development based on strategic private investment in six cities.

Figure 3.1 | Case study municipalities



Source: Author, based on INEGI 2010, 2019

Table 3.2 | New social housing units and built-up area

Municipality	New built housing units from 2000–2010	Built-up area with new housing units (hectares)*
Huehuetoca	67,589	1,039
Tecámac	125,202	1,926
Zumpango	68,200	1,049

Source: Montejano, Caudillo and Cervantes (2018) based on Municipal Urban Development Plans, Conafovi (2004) and Sedur (2017). *Calculated assuming 65 dwellings per hectare as the median for newly built housing developments in the State of Mexico

These different geographical scales allowed me to perform analyses conveying a different level of detail. The national perspective provided an overview of the policy, the metropolitan

perspective allowed me to quantify the impacts of the policy and the municipal perspective provided evidence of the implementation of the UCPs. The multiscale analysis allowed me to understand the lack of articulation between housing and planning, from tracing the origin of the policies to their implementation, highlighting different political dynamics across and between different actors and institutions. These multiple scales were used concurrently and in combination with different methods to find the best approach to answer my research questions.

3.3.2 Qualitative methods

A series of qualitative methods were selected as a way to convey the perception of different actors regarding the implementation of the UCPs. These views were then triangulated with different sources of secondary data. The use of qualitative methods also allowed me to provide in-depth analysis of specific cases and understand the dynamic processes underlying housing development and urban planning.

3.3.2.1 Analysis of secondary data

Before starting data collection, it was important to gain familiarity with the UCP policy and the status of housing and urban development instruments in Mexico. This involved the analysis of the technical and operational aspects of the UCPs and the housing subsidy programme, as well as the revision of federal housing and urban planning regulation and laws. This analysis allowed me to narrow down the general questions in my interview guides and to focus on specific questions rather than on information that can be found in the policy documents. Later in my analysis, I performed further analysis of financial reports and local planning instruments that helped me develop an outline of the housing construction and urban planning implementation process, which are key components of my empirical chapters. The analysis of secondary data eventually allowed me to triangulate the findings from the material collected in the interviews. In other words, my findings were grounded in both primary and secondary data.

3.3.2.2 Fieldwork and primary data collection

Data collection took place during four different stages of fieldwork conducted in Mexico, adding up to a total of seven months in the field (Table 3.3). The first stage was a pilot fieldwork in 2017 when I conducted interviews with federal public officials in charge of developing the technical aspects of the UCP policy.

Table 3.3 | Field work dates and activities

Research stage	Dates	Main activities
Pilot fieldwork	Aug–Sep 2017	Interviews with federal public officials
2nd fieldwork	Oct–Nov 2018	Interviews with municipal officials, site visits
3rd fieldwork	Apr–Jun 2019	Interviews with private developers
4th fieldwork	Dec–Jan 2021	Photographic documentation

Source: Author

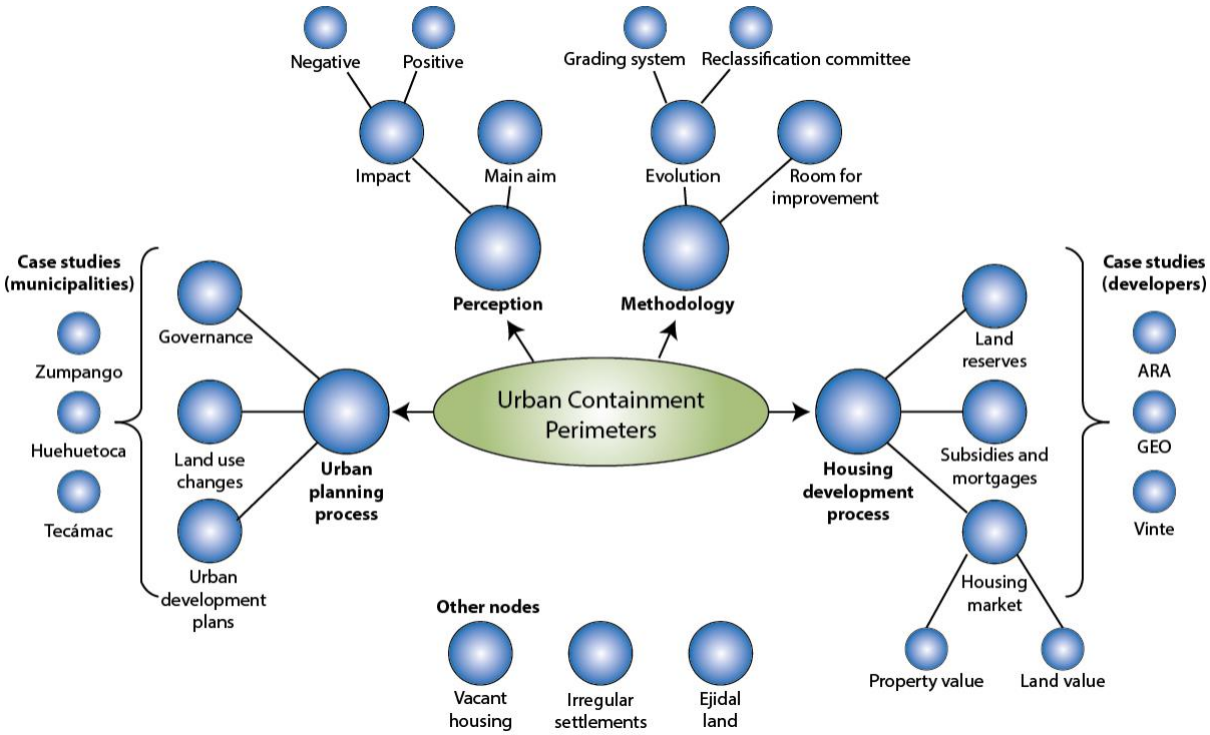
Two more fieldtrips followed in the subsequent two years when I interviewed municipal public officials and private developers. The incremental character of the fieldwork, with time between periods of fieldwork, gave me the opportunity to transcribe and analyse the data progressively. Each time I returned to the field with a more complete understanding of the policy's strengths and weaknesses and with a clearer picture of what to look for. The final fieldwork enquiry was conducted in December 2021 (postponed from 2020 due to the Covid-19 pandemic) in order to collect photographic documentation to illustrate different urbanisation patterns in the case study municipalities.

3.3.2.3 Thematic analysis of material from interviews

The iterative process of analysis that started after each stage of fieldwork involved, first of all, the transcription of all interview material. Since the interviews were conducted in Spanish, I chose to perform the thematic analysis in Spanish to capture contextual detail. I then translated to English selected material that was to be included as part of my empirical chapters. With the help of NVivo, I performed thematic analysis of the textual material. NVivo helped me to quickly navigate across the content of the interviews and to find links between different groups of actors along a specific theme. It also allowed me to code and classify the transcripts, creating different thematic nodes: perception of the UCPs, methodology of the UCPs, urban planning and housing development process (Figure 3.2). These themes would eventually define the structure of my empirical chapters. The node 'perception of the UCPs' enabled me to identify different perspectives on the main objectives of the policy and their effectiveness in achieving its goals (see Chapter 4). Similarly, 'methodology of the UCPs' helped me understand the intricate nature of the policy, including its evolution through time and the opportunities to improve the policy as identified by informants (see Chapter 5). The 'housing development' node provided material to illustrate the interactions between private developers, the federal and local government and the housing market, touching on topics related to subsidies and mortgages, land reserves and housing and land prices (see Chapter 6). Finally, the 'urban planning' node compiled different statements on urban planning processes, including the

development of urban planning instruments, mechanisms for land use change and the intricate governance structures around planning (see Chapter 7).

Figure 3.2 | Mind map of nodes identified during thematic analysis



Source: Author

While performing the analysis, I found that some topics emerged which are not directly related to the UCP policy but that could have been indirectly affected by its implementation. These topics were grouped in independent nodes regarding 'vacant housing', 'irregular settlements' and 'ejido land'. The material that emerged from these nodes is discussed throughout the thesis with particular emphasis on links to housing and urbanisation processes. Chapter 8 includes a final reflection on the potential relationship between the UCP policy and each of these topics, opening several pathways for future research.

3.3.2.4 Case studies

The thematic analysis also underscored the need to perform further analysis in a series of case studies. Case studies are used to offer a holistic approach and a deeper understanding of a specific case and its interactions with the context within which it sits (Yin 2017). For my analysis of the impact of the UCPs on housing developers and on local urban planning, I employed two sets of case studies. The first set are three housing development companies (GEO, ARA and Vinte) whose different views of the UCPs and development strategies were

key to understanding the diverse responses to the implementation of the UCPs. These cases were selected on the basis of access to informants and because they represent three of the largest development companies focused primarily on social housing. The second set of case studies are three municipalities of the State of Mexico (Huehuetoca, Zumpango and Tecámac) which offer contrasting views on the adoption of the UCPs as a planning tool.

3.3.3 Quantitative methods

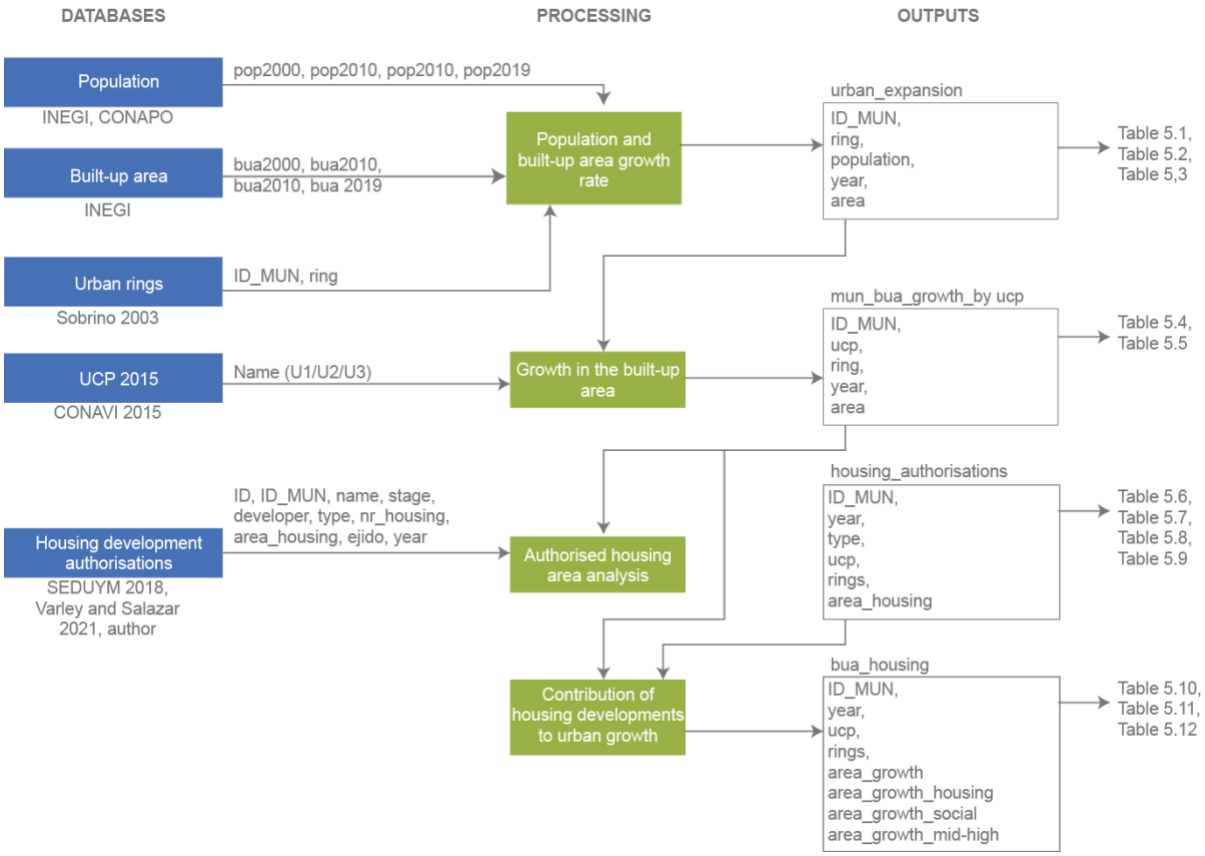
While conducting interviews, one recurrent question from participants was 'Is the UCP policy working?' This makes clear the fact that there is an interest in the evaluation of public policy (Durning 1999). Particularly in countries like Mexico, being able to measure the success of a policy is key to ensuring its continuation. This assessment is often (if not always) expected in quantitative terms. As mentioned before, there is currently no systematic analysis of the success or failure of the policy in containing urban expansion or in improving the location of housing. It was therefore key for my research to provide this much needed assessment of the policy in the form of quantitative evidence.

3.3.3.1 Data processing and descriptive statistics

Mexico is a data-rich country. There is a wide variety of geostatistical information available, most of it published by the National Institute of Statistics and Geography (INEGI). Urban indicators such as access to infrastructure, transport and street retail, however, were only incorporated into the Population and Housing Census in 2010, updated in 2014 (INEGI 2010a, 2014). In terms of housing, Mexico has a rich information system (the National Housing Register, or RUV in Spanish, and the Housing Information System, or SNIIV) including type, costs, development progress and financial indicators. Due to the private nature of these sources, however, the precise location of the housing in question is restricted. Most databases aggregate data at the municipal level. In addition, information about private land reserves is highly confidential as sharing this with competitors would put developers at a disadvantage. Thus, data is available, but the level of granularity to be able to map the precise geographies of housing and urbanisation against the UCP zones is limited. To overcome this limitation, I had access to a database including the authorisations of housing developments in the State of Mexico, which I manually georeferenced to be able to track their precise location in relation to the UCP zones. I provide more detail about this below and in Chapter 5.

Pre-processing of data was therefore an important task to combine databases of different scales, types and sources. I used R, open-source programming software, with the R Studio interface to compute data analysis and descriptive statistics and to produce graphics. By mapping the data in flowcharts, I was able to distinguish the links between databases, processes and outputs for the quantitative analysis of each empirical chapter (see an example of the data processing for Chapter 5 in Figure 3.3).

Figure 3.3 | Overview of data, processing and outputs of quantitative analysis



Source: Author

3.3.3.2 Spatial analysis

The spatial character of the UCPs meant that an important component of my analysis was to be able to track spatial variations on the location of housing and urban growth patterns in relation to the UCPs. I used Geographic Information Systems (through the software QGIS) to analyse different kinds of vector data including the different versions of the UCP zones, population and housing census data and geolocated data from housing authorisations. Using these data, I performed a longitudinal analysis to track variations through time before and after

the implementation of the policy. Most of the databases were analysed based on two periods: from 2000 to 2009 and from 2010 and 2019 (see section 3.4.2).

3.4 Applying the methods

In order to interpret the large amount of empirical data collected from different sources, I developed an analytical framework to study the conditions, processes and strategies behind using financialised housing as urban planning. This framework is based on conceptualising the UCPs as 'peripheral planning', as described in Chapter 2, as a way to link housing and urban planning to peripheral urbanisation processes.

Due to the contingent character of peripheral planning, a series of exceptions—including negotiation and customisation processes—arise around its conception and implementation. These processes are reflected in my research questions and the methods chosen to analyse the data. I do this, first, by understanding the dynamics that allowed the creation of exceptions during the inception of the policy; second, by assessing the impact that such exceptions had on the effectiveness of the policy; and third, by exploring the role that exceptions played in the responses from private developers and local government officials. By framing my analysis around peripheral planning, I was able to see these exceptions not only as relevant empirical findings, but as conceptual contributions to understanding the use of financialised housing as urban planning.

3.4.1 Understanding the UCPs by following the policy

In order to understand the logic behind the emergence of the UCPs, I completed a thorough analysis of the official documentation provided by the federal government regarding national housing and urban development plans, housing laws and policy documents of the housing subsidy programme, including the UCPs. I was particularly interested in tracking changes over time, as the policy evolved and became less strict. Since this is a federal policy, which applies to 384 cities across the country, the scale of analysis was national. The time frame of analysis was between 2012 and 2018, during the mandate of President Peña Nieto from the PRI. Below are some of the key policy documents and laws reviewed:

- General Human Settlements Law 1976, 1996, 2016
- National Urban Development and Housing Plan 2012-2018 (SEDATU)
- Operational guidance for the housing subsidy programme (2014–2019)

- Geostatistical model defining the UCPs (2013–2018)
- Requalification Committee Resolutions (CONAVI 2014–2018)

The pilot fieldwork in 2017 was key to gaining a deeper insight into the policy through interviews with mid-range federal government officials from the National Housing Commission (CONAVI) (Appendix A: List of interviews). After the change of federal administration in 2018, I made two more fieldwork trips in 2018 and 2019. By then, many of the former federal officials had either changed their position or left CONAVI altogether (as often happens with elite personnel of previous administrations). This allowed me to interview former CONAVI directors and former top-rank officials in a more informal setting, which meant they could open up without fear of political repercussions or accountability.

I also conducted interviews with personnel from other federal bodies related to social housing production to understand their perception of and receptiveness to the UCP policy. These included the Federal Mortgage Trust (SHF), the Ministry of Agrarian, Territorial and Urban Development (SEDATU), the National Housing Register (RUV) and the National Workers' Housing Fund (INFONAVIT). To understand the technical aspects of the policy, I interviewed two former external consultants for CONAVI who were commissioned with the technical definition of the algorithms behind the different UCPs zones.

The insights from the interviews were triangulated with official data from the Housing Information System (SNIIV) from CONAVI, including housing stock and land reserves by type, income group and corresponding UCP zones. SNIIV is a publicly accessible and regularly updated database including information from 2014 onwards regarding land reserves and housing supply and demand, commonly associated with the allocation of credits and subsidies for social housing developments (CONAVI 2020).

3.4.2 Assessing the UCPs' effectiveness by measuring their impact

One of the key questions and aims of my research was to provide empirical evidence of the effectiveness of the UCPs since there is little proof of their success or failure in steering urban development towards the pre-defined zones (Martínez 2018; Reyes 2020a). Having numerical results is one of the most common ways of evaluating public policy, but the complex nature of the UCPs and the limited access to information regarding the precise location of housing and private land reserves made it a difficult task.

I used different methods to analyse the success of the UCPs in achieving its two main objectives: to improve the location of affordable housing (in the sense of bringing it closer to urban services and jobs) and to contain urban expansion. For the analysis of urban expansion, I focused on the Metropolitan Area of Mexico City. Due to data availability restrictions, for the analysis of housing location I focused on the municipalities of the State of Mexico that form part of the Metropolitan Area of Mexico City.

I used Geographic Information Systems (GIS) to analyse the distribution of recent urban growth in relation to the different UCP subsidy zones. Similarly, I analysed the location of recently authorised housing developments and examined the distribution of housing in relation to the UCPs for different time periods. Finally, I compared the two analyses (urban growth and housing location) to assess whether recent urban expansion areas corresponded to new housing developments, which would imply a failure of the UCP policy in using housing to steer urban development to the pre-defined zones in proximity to employment and with better access to services.

The variables of population, built-up area and new housing location were key to understanding the magnitude and type of urban expansion in relation to the UCPs. Because I wanted to map these variables in relation to the different UCP zones, I needed the databases at the smallest scale of detail available. While there is a wide variety of data available in Mexico, the time of publication of the databases and the level of aggregation did not fully match the time of the rather recent implementation of the UCP policy in 2013. In order to fully grasp changes in urbanisation trends, I expanded my time frame of analysis from 2000 to 2019 (Table 3.4).

Table 3.4 | Variables and data sources

Variable	Database	Scale of analysis	Period analysed	Source
Built-up area	Census geographies	City blocks	2000, 2010, 2019	INEGI
Population	Population and housing census, Population projections	City blocks	2000, 2010, 2019*	INEGI, CONAPO
New housing developments	Housing development authorisations	Address, geolocated by author	2000 to 2019	Gaceta de Gobierno del Estado de México

Source: Author. *Population projections from CONAPO. Note: Since I performed this analysis, a new population census has been published

To assess built-up area most studies in Mexico have relied on urban enumeration districts (Monkkonen 2011a; Connolly 2019). But these often include polygons of different sizes, with a limited level of detail (or granularity) to distinguish urban from non-urban areas. To overcome this issue, I used city block-size geometries from the census, which provide a higher level of granularity. Population data was available from the 2000, 2010 and 2015 censuses, although the latter was only available at municipal level. Since the new population census had not been published at the time of analysis, I used official population projections at municipal level to estimate the population in 2019. The precise location of newly built housing developments was not available in official databases, in which it is only aggregated at municipal level. To bypass this limitation, I used a database containing the authorisations of housing developments in the State of Mexico from 1995 to 2018, compiled from the State of Mexico gazette (for more detail on the pre-processing of the database, see Chapter 5). I then manually georeferenced authorisations for 377 housing developments and extended the database to 2019.

Comparing the precise location of housing developments (which can take years to complete) with a rapidly changing version of the UCPs highlights a temporal mismatch between the two data sources. In fact, the official assessment of the success of the UCPs is being measured by comparing the number of new housing units registered in each UCP per year. Given that this analysis is performed using a new version of the UCPs each year, this implied that the analysis is biased by comparing housing location with an ever-growing version of the UCPs (CONAVI 2020). For example, a housing development authorised in 2015 and located outside the 2015 UCP version, which was more restrictive, may be considered by the official assessment of the 2017 version, which was less restrictive, to be located within the UCP subsidy zones. To overcome this temporal lag, I chose to perform the analysis using one single version of the UCPs, against which I compared the urbanisation changes. I chose the 2015 version since it was the first to be made mandatory (the 2013 version was not fully implemented) and because there have not been substantial changes (in terms of the area included in each UCP zone) in the subsequent versions since 2015.

3.4.3 Understanding how housing developers and planning officials navigate the UCPs

Besides simply evaluating the degree of success of the UCP policy, the aim of this research is to understand how its implementation has affected different groups of actors involved in social housing and urban development in Mexico. I focused primarily on the responses from private

housing developers and from local planning officials as they navigate the UCP regulations. I employed in-depth interviews and document analysis to identify the challenges and opportunities faced by each actor and to explore how their respective development/planning strategies have been affected by the implementation of the UCPs. I then delved deeper into specific case studies to further understand different responses to the UCP policy.

3.4.3.1 Following the housing development process

In order to understand the impact of the UCPs on housing development, I started by outlining the housing development process and identifying precise moments when the UCP policy 'intervened' in this process. The link between housing development and finance was key to understanding the potential impact of the UCPs on the housing development process. It was therefore crucial to understand private developers' business model to recognise the logic behind choosing land for development and the different paths taken to navigate the complex housing development process (Libertun de Duren 2018). For this purpose, I conducted in-depth interviews with three different groups of actors involved in the private sector, cross-checking their responses by reviewing official company sales reports, media analysis and official data on housing stock and sales.

First, to obtain an overview of the industry of housing development I interviewed representatives of the National Chamber of Development and Housing Industry (CANADEVI), both at national and metropolitan level (see Appendix A: List of interviews). Second, to understand the current housing market trends and potential vulnerability to the introduction of the UCPs, I conducted interviews with financial advisors specialised in residential real estate in Mexico. Financial advisors tend to have a clear overview of the housing development process and future development trends. These informants also provided crucial data on housing production and commercialisation in Mexico. Finally, to obtain the private developer's perspective and individual responses to the implementation of the policy, I selected a series of companies as case studies that portrayed different narratives about and responses to the UCP policy. This selection was based on access to informants and on the type and size of these companies. My previous work experience as an architect and policy advisor allowed me to create an extensive network of private and public actors involved in housing production. Using this network of contacts, I was able to access representatives of the key development companies in Mexico. I focused primarily on companies listed on the Mexican Stock exchange because

these tend to be the largest companies and because, being publicly listed, they are obliged to publish their sales reports every year. The selected case studies are briefly described below:

- **GEO** Once one of the largest development companies, with 20,000 employees and building at a pace of 56,000 housing units per year in 2010 (Corporación GEO 2010). Focused primarily on developing social housing but went bankrupt in 2018.
- **ARA** Large development company, with over 1,000 employees and building at a pace of 16,000 housing units in 2010 (Consorcio ARA 2010a). Focused primarily on social housing but recently diversified to include greater attention to mid-income markets.
- **Vinte** Smaller size development company, with over 300 employees and developing around 2,000 housing units per year in 2010 (Inmobiliaria Vinte 2010). Only recently went public, in 2016, and has experimented with innovative 'green' financial mechanisms.

3.4.3.2 Following the urban planning process

I used a similar approach to understand how the UCPs have or have not influenced the local planning development process. By conducting interviews with local government officials and reviewing planning documents, I was able to outline the process for creating and updating urban development plans. Doing so highlighted the intricate governance structures behind urban planning, where the local government gets the responsibility but lacks the resources to implement it.

I focused on three explanatory case studies located in the northern sector of the Metropolitan Area of Mexico City: the municipalities of Tecámac, Huehuetoca and Zumpango. Besides having similar socio-economic characteristics, these municipalities have seen the greatest increase in recently built social housing developments and built-up area growth associated with new financialised housing developments between 2000 and 2010 (Montejano *et al.* 2018).

- **Tecámac** Municipality adjacent to the northern border of CDMX, with over 364,000 inhabitants in 2010 (INEGI 2010b). It has the highest housing and population growth rate in the region (UN Habitat, INFONAVIT and SEDATU 2018).
- **Huehuetoca** Peripheral municipality with 100,000 inhabitants in 2010 (INEGI 2010b). Primarily focused on the manufacturing sector. Its housing growth rate is twice the population growth rate between 2000 and 2010 (UN Habitat, INFONAVIT and SEDATU 2016a).

- **Zumpango** Peripheral municipality located between Huehuetoca and Tecámac with 160,000 inhabitants in 2010 (INEGI 2010b). Economic activities primarily focused on small retail (UN Habitat *et al.* 2018).

Gaining access to municipal informants was more difficult than it was to gain access to private developers. I approached them by calling the urban development departments from the different municipalities but talking to the person in charge proved difficult. Eventually, and by chance, I met the Technical Secretary of the municipality of Tecámac, who happened to attend a conference at Universidad Autónoma Metropolitana (UAM) where I was presenting my research. This informant turned out to be one of the key actors in the municipality, whose personal interest in academic research made him willing to talk to me and to introduce me to other colleagues dealing with urban development in Tecámac. Starting with the contacts of this participant, I used 'snowballing' to reach public officials in the neighbouring municipalities of Huehuetoca and Zumpango. In these municipalities I interviewed different municipal personnel, including urban development department directors and technical and operational personnel.

During these interviews, my focus was to understand the urban planning implementation process, to assess public officials' familiarity with the UCP policy and to identify to what degree the UCPs had intervened in the planning process. I complemented the responses from the interviews with an analysis of different institutional, political and financial indicators for each municipality, for which I relied on public municipal finance information available through INEGI (INEGI 2018, 2019a).

3.5 Limitations

There are several latent limitations within my research, including political, technical and conceptual risks. The first limitation in this research is my positionality as an action-oriented researcher. My research emerged from a problem identified during my years of practising as a policy advisor. It was therefore hard for me to avoid attempting to propose a solution or a recommendation to the observed phenomenon. In that sense, my research is policy-driven and action-oriented, which makes it somewhat difficult to link with concepts and frameworks commonly used in the academic field of human geography or other social sciences. Using the combination of methods explained above, however, I have found a middle ground between theory and practice that best responds to my research questions.

In addition, as a middle-class female researcher from Mexico studying in a renowned university abroad, I was in a privileged position while conducting this research in my home country. This was particularly evident when carrying out field visits and interviews in the municipalities of Huehuetoca and Tecámac, where my presence may have triggered different dynamics. On the other hand, being a female researcher in the male-dominated environment of local planning offices meant that I sometimes felt I was considered less knowledgeable or familiar with local urbanisation processes than male counterparts. I overcame this limitation by deliberately making myself appear naïve regarding certain urbanisation processes, which allowed the informants to feel secure enough to add more detail to their statements. In other cases, my network of contacts proved useful as I interviewed people with whom I had worked before as part of my consultancy role at Centro Mario Molina. Had I not had those contacts beforehand, it would have been almost impossible to gain access to top-ranking informants in federal institutions.

The second limitation concerns the timing of my research. By the start of my PhD in 2016, the UCP policy had only been in existence for three years, so it was early to see changes in urbanisation patterns. This also implied difficulties regarding the available data sources, such as the census, which at the time of conducting my analysis was only available for 2010. This meant that I was not able to compare disaggregated demographic data as had originally been intended. As mentioned above, however, I was able to use a variety of sources and methods to triangulate sufficient information for my research purposes.

Another important timing limitation was that Mexico held general and presidential elections in 2018, resulting in a change in the federal administration. In the same year, there were local elections resulting in changes of government in a number of States and key municipalities. As is a common practice in Mexico, this implied the replacement of top-rank officials of many federal, State and municipal institutions, although technical staff were more likely to remain in their current job or institution. To prevent the risk of losing access to key informants who were in office during the implementation of the UCP policy, I planned my fieldwork to be able to conduct most of my interviews with government officials before the end of 2018. This was particularly helpful in the municipal governments because a year later most of these informants lost their positions. Eventually, the change in federal administration proved useful for me because I was able to approach former top-rank officials of key federal institutions (e.g. CONAVI and SEDATU) once they had been replaced. Since they were no longer accountable

for their political actions, they were more willing to talk freely about the strengths and weaknesses of the UCP policy.

The third limitation of my research is its mixed-methods approach. As discussed above, conducting mixed methods as a single researcher implies that my analysis may be less comprehensive than other analyses focusing on solely qualitative or quantitative methods. What follows is a reflection on the specific limitations and future considerations identified for each type of analysis.

3.5.1 Limitations of the quantitative analysis

An important component of my original research proposal was to assess the type of the recently developed urban areas and to differentiate between social housing developments, irregular settlements and non-residential land uses. This was intended to help me understand the possible impact of the UCPs on other types of urban development, but particularly to see if they had an impact on the proliferation of irregular settlements, which would imply a perverse consequence of the policy. Although the UCP policy could only have a direct impact on social housing developments (by conditioning access to federal housing subsidies), restrictions on the location of social housing may have halted social housing production, which could in theory translate to an increased proportion of the population finding accommodation in irregular settlements.

Since data on the type of urban development is limited, I tried different methods to perform this classification. One of the most promising of these methods is the use of visual interpretation techniques to classify satellite imagery of the expansion areas in the Metropolitan Area of Mexico City. In fact, during my cross-disciplinary training at the UCL Bartlett Centre for Advanced Spatial Analysis (CASA), I learned image classification techniques and tried to apply them to my research. After several attempts, it emerged that the technique was not appropriate for differentiating types of urban settlements. Although there is a clear visual difference between the heterogeneous appearance of irregular settlements and the homogeneous structure of social housing developments, image classification techniques can only depict variation in the types of surfaces (e.g. vegetation from urban, water surfaces) Because both irregular and social housing projects are built with very similar materials (i.e. concrete rooftops), it was impossible to accurately and consistently classify them in a reliable manner.

Eventually, I desisted and instead decided to use the geolocated database of authorisations of new social housing developments for the State of Mexico. Using this database, I was able at least to differentiate new built-up area associated with social housing developments from other types of urban development. Since the UCP policy only has a direct effect on social housing developments through the allocation of housing subsidies, a distinction between what *is* social housing and *the rest* was considered sufficient to enable me to gauge the policy's effectiveness. Future research is needed to assess the indirect impacts that the policy could have on the development of irregular settlements.

3.5.2 Limitations of the qualitative analysis

Although the use of qualitative methods allowed me to obtain novel and detailed insight into the emergence of the UCPs through access to key informants involved in its creation, I recognise that broadening the sample to include other groups of actors would have enriched my research. For example, I could have interviewed local planning actors from a larger sample of municipalities. Access to municipal informants was difficult, however, because of the local political dynamics and the diversity of backgrounds of the people in power (some being more interested in academic work than others). I was only able to gain access to these contacts via existing ones, in a snowballing manner. Similarly, for interviews with private developers I was only able to interview participants from five different companies and two from the Chamber of Commerce. A larger sample of companies and of personnel within each company might have enriched my findings. Once again, access to these participants was not straightforward and I could only obtain it by making full use of my existing network of contacts. Further research can overcome this by allocating more time to being in the field and building a larger network of contacts, but for my research that would have reduced the time available to perform the quantitative analysis.

3.6 Ethical considerations

As a researcher conducting research involving human participants, I have the ethical responsibility to ensure that my research is performed with integrity and that the well-being and confidentiality of the participants is safeguarded at all times. In order to address any ethical considerations, I followed the standard ethics assessment procedure at UCL. My research falls within the 'University research' domain and therefore did not require review by an external research ethics committee. My research was also exempt from ethical review by the UCL

Research Ethics Committee because of the type of information used (freely available in the open domain), research methods (non-intrusive and non-sensitive topics) and participants involved in the research (non-vulnerable and/or involved in the public arena) (see exemptions 1, 2, 4 and 5 of the UCL exemption guidelines). Instead, ethical guidelines for the research were discussed with and endorsed by my supervisor and upgrading committee. A large part of my research involved managing publicly available information and anonymised records fully available in the public domain regarding housing and urban policies. The only times I interacted with human participants were through the non-intrusive method of in-depth interviews where participants were not exposed to undue stress or anxiety. In some cases, I carried out in-depth interviews with participants in the public arena—namely federal and local public officials—who, because of the public character of their statements, are classified as exempt from ethical review procedures. In interviews with other non-vulnerable participants, like private developers, complete anonymity was offered. No ethically sensitive topics were discussed during the interviews. Whenever I handled personal data (e.g. names and contact details of participants), I followed UCL's guidance for collecting, processing and storing personal data in order to safeguard the confidentiality and level of anonymity consented to by each participant.

As regards primary data collection, participants' data were collected during the in-depth interviews. All participants were given information sheets in advance and requested to sign consent forms before the start of the interview. Whenever formally approved by the participants, I recorded the interviews on an audio device. In those cases where the participants did not consent to recording, I requested consent to take notes. The notes and recorded material were transcribed as soon as possible to avoid losing relevant contextual detail. Different levels of anonymity were offered to participants, from full anonymity to partial or full disclosure. Most participants agreed to full disclosure. Others requested that their names should remain anonymous, while agreeing to disclose their position and affiliation. Personal data from the participants such as names, contact details and signed consent forms were stored securely by using a remote secure connection to the UCL N: drive. Anonymised interview transcripts were stored in an encrypted external device (my personal laptop) while I was in Mexico, before being stored in UCL's N: drive during analysis.

For secondary data collection, most of the data involved official data were publicly available (e.g. census data, housing stock data) and were provided at high level of aggregation (e.g.

census block, municipal level). According to this level of aggregation, I attended to the recommended principles of data adequacy, transparency and reproducibility (Guerrero and Kandt 2021).

Even though my research was exempt from UCL Research Ethics Committee ethical approval, I conducted it according to UCL's ethical and professional standards, attending to the principles of benefit and no harm, informed consent and confidentiality. My project was registered by UCL Data Protection Registry with the registration number Z6364106/2018/07/115 for social research.

3.7 Conclusion

Analysing the UCPs as both a housing and an urban planning policy from a pragmatic perspective implied the used of mixed methods and a combination of primary and secondary data sources. This complex methodology allowed the triangulation of outcomes from different types of analysis that grounded my findings both quantitatively and qualitatively. Working at different analytical scales allowed me to go into detail in the specific cases, while maintaining an overview of the national processes behind the emergence of the policy. Using an analytical framework based on the concept of 'peripheral planning' I was able to recognise the contingent character of the UCP policy, while tracing the role that exceptions played during its conception and implementation, with implications for its effectiveness and for the effects the policy had on the responses of different actors.

This research contributes to existing scholarship on the UCPs by providing evidence of their success or otherwise in containing urban expansion and improving the location of housing and by providing a critical reading of the negotiation processes of different groups of actors, as they were confronted with the UCP policy implementation. By focusing on the Metropolitan Area of Mexico City, I chose as my case study one of the most complex examples of urbanisation processes. I was also able to highlight different underlying processes that have been affected by the implementation of the policy, such as metropolitan and local urban governance. In addition, by tracking the precise location of housing development authorisations, I was able to map accurately the changes in the geographies and type of recent housing developments. Several considerations will need to be addressed in further research, but my methodology represents the best approach available to answer my research questions considering the data availability, my technical skills and the political settings at the time.

4 The origins of the Urban Containment Perimeters

This chapter explores the context from which the Urban Containment Perimeters (UCPs) emerged. Drawing on document analysis and extracts from interviews with federal officials in charge of creating the policy, I illustrate the background of the policy and analyse the political setting and changes in the institutional architecture that allowed its conception. In addition, I explore the technical aspects of the UCPs' origins and details about their implementation, as well as examine how the policy was modified before, during and after implementation.

4.1 Origins of the UCPs in Mexico

On Friday 8 March 2013, the tenth edition of the Mexican Housing Day began in New York. The following week it took place in London. This is a yearly event organised since 2003 by the Mexican government and the private sector to promote foreign investment in the Mexican housing construction sector (*Excelsior*, 8 March 2013). This edition of the Mexican Housing Day was different because there was uncertainty in the air. Just a month earlier, on 11 February 2013, the newly elected president, Enrique Peña Nieto, had announced fundamental changes in the National Housing Policy. Despite introducing what appeared to be radical changes in the national housing strategy, his announcement remained rather vague. It lacked detail about its implementation and it was therefore difficult to estimate the degree to which the policy could potentially affect the housing construction sector. As both real estate development firms and international investors waited for clarity, federal officials from different housing institutions took the Mexican Housing Day as an opportunity to provide more detail of what the new housing policy would entail (*ibid*). The most radical change regarded access to subsidies for affordable housing, which would henceforth be granted only in certain pre-defined locations within the UCPs.

While developers tried to untangle what these new rules would imply, some considered that this would have immediate impact on their business model—largely dependent on large-scale plots of land—as their existing land reserves were unlikely to fall within the UCPs. As pointed out by the CEO of a large development company attending the event, the magnitude of the impact of the UCPs had something to do with the way they were introduced.[11] To this CEO, it seemed that officials were announcing that, from that day onwards, the government was going

[11] Interview with CEO, Vinte, Mexico City, 22 November 2018.

to redefine where subsidies were to be applied and where housing was to be built. In fact, government officials were careful to emphasise that the implementation of the policy would be gradual, providing a two-year transition period and ensuring that the operational guidelines would be announced well ahead of the policy's implementation. In addition, just days before the Mexican Housing Day, the Federal Mortgage Trust (SHF) and the Ministry of Finance (SHCP) announced a new programme in which they would act as guarantor to real estate development firms for mortgages and construction loans issued by financial institutions (both national and international) for the development of new housing (*Excelsior*, 8 March 2013).

Until then, the previous federal government had actively supported financial investment in the housing sector as a way of tackling the housing deficit (see Chapter 2). But the apparent win-win model began to show cracks in 2012 when developers struggled to make sales at the rate they were constructing, leading them to financial difficulties. The increasingly high number of unsold housing units only worsened with the even higher rate of housing vacancy, as residents started to abandon their remote and ill-equipped new dwellings in pursuit of options closer to employment opportunities (Reyes 2020b). These negative externalities were too obvious to ignore because they brought negative publicity that was detrimental for international investment. It was nonetheless clear that construction had to continue, as the industry contributed significantly to the national economy. A newly elected government in 2012 therefore had to find ways to keep the housing model afloat and to do so it had to introduce new restrictions on the housing development process. To understand the logic behind this radical change of strategy, one must look at the political environment surrounding the emergence of the policy.

4.1.1 Federal political setting

In Mexico, the federal administration changes every six years, and there are no re-elections at that level. Every change in administration implies replacement of top-rank officials, e.g. heads of ministries, and consequently it is common to change the policies and strategies proposed by the previous administration. In the housing construction sector, which depends on housing and urban development policy, there is a period of particular uncertainty at the end of each administration.

In 2000, the National Action Party (PAN) became the first party to win against the Institutional Revolutionary Party (PRI), which had ruled the country continuously for 71 years. With

Vicente Fox as the president and the slogan 'It's time to change', the PAN pursued important transformations in the construction sector by continuing the neoliberalisation of the economy that started in the 1990s. After Fox in 2006, the PAN continued in government with Felipe Calderón who continued to support the model of mass-housing production, pairing it with further financialisation of the housing sector. Thus, twelve years of continuity in federal housing policies created one of the most profitable business climates ever experienced by developers in Mexico seeking to build affordable housing, such that the sector contributed 21% of the national GDP by 2011(CIDOC and SHF 2011).

The victory of Enrique Peña Nieto in the federal elections of 2012 represented the return to power of the Institutional Revolutionary Party (PRI). Peña Nieto therefore had to prove that he was part of the 'new PRI', allegedly free from the authoritarian and clientelistic practices associated with the 'old PRI'. While the housing development model supported by the two previous PAN administrations had already begun to show some cracks, Peña Nieto lived up to expectations by ensuring new ways to keep the 'housing *train* moving forward'.[12] It was clear that the government needed to begin addressing the quality of newly built housing and the surrounding built environment. The chosen strategy was to set some limits on *where* affordable housing should be developed by limiting the receipt of subsidies to housing located within the UCPs.

In fact, the UCPs were initially conceived at the end of President Calderón's term in 2011–2012. The construction industry was aware of the policy, and developers were even invited to preliminary meetings during the policy design stages. At that time, however, the UCP policy was only optional and it was seen as likely to be transitory because it was introduced at the end of the administration.[13] To everyone's surprise, however, the UCPs 'not only survived the change of administration, but became the core of Peña's housing policy'.[14] The UCPs surviving the change of administration could indeed be attributed to its very newness, making it possible for the new administration to adopt it and present it as their own.[15]

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[12] Speech by Enrique Peña Nieto, President of Mexico, Presentation of the New Housing Policy, Mexico City, 11 February 2013.

[13] Interview with former Deputy Director (2016-2018), CONAVI, Mexico City, 8 April 2019.

[14] Interview with former General Director (2016-2018), also former Deputy Director (2012), CONAVI, Mexico City, 29 May 2019.

[15] Interview with former Deputy Director (2016-2018), CONAVI, Mexico City, 8 April 2019.

4.1.2 New institutional architecture: SEDATU and CONAVI

The National Housing Policy was only one of the changes envisioned in the sector during Peña Nieto's administration. There was also a series of transformations in the institutional architecture of housing and urban development bodies. The National Development Plan (*Plan Nacional de Desarrollo* 2013-2018) included strategies focused on improving citizens' quality of life and well-being. It emphasised promoting sustainable and smart urban development, shrinking the housing deficit *responsibly* and improving inter-institutional coordination (Gobierno de la República 2013). While the first two strategies were addressed directly by the National Housing Policy, institutional coordination was addressed through the creation of the Ministry of Rural, Territorial and Urban Development (SEDATU).

Before 2012, there was no single body in charge of coordinating and implementing urban development and housing policy (OECD 2015). SEDATU was therefore created to coordinate the country's rural, urban and housing development strategies. Although its creation was seen as a step forward in coordination efforts, many issues remained unresolved within the institution, partially as a result of its limited budget in comparison with that of other ministries. The series of diverse governmental bodies that come under the authority of SEDATU imply that there are often duplicated efforts that undermine the efficiency of territorial development—a complex task considering that it includes rural, urban and housing developing strategies. One of the institutions under SEDATU's umbrella is the National Housing Commission (CONAVI), created in 2001 as a technical counterpart to SEDATU and focused on housing. CONAVI was in charge of implementing the National Housing programmes, including the rules for subsidy and federal financing allocation, which eventually included the UCPs as a regulatory instrument (Monkkonen and Giottonini 2017).

The UCPs became SEDATU's best attempt at fulfilling the ambitions derived from this new institutional architecture, which aimed to link housing, urban planning and rural development. As we will see in the remainder of this chapter, however, these expectations were never entirely fulfilled.

4.1.3 The conceptualisation of the UCPs

Looking at the way the UCPs were conceived helps us understand the limitations around the implementation phase of the policy. During my fieldwork, I interviewed a series of officials from CONAVI, including three former General Directors (two of whom had also worked at

SEDATU), two Deputy Directors and other mid-range officials involved in developing the technical aspects of the policy. The narrative behind the emergence of the UCPs was consistent across these actors. They all acknowledged the need to establish some rules or limits to the allocation of subsidies, as the General Director from 2012–2013 commented:

> [W]e started to see the way in which we could limit the distribution of subsidies, which was indiscriminate and which generated these isolated, disconnected developments. And the subsidy contributed to the housing developers' business model: finding cheap land, converting the land use from rural to high-density urban, making horizontal housing developments, providing services and selling the houses very cheap. When the workers [new residents] realised that it was impossible to commute from those places to their jobs, that's when the well-known problem of housing abandonment appeared.[16]

The whole idea of regulating how the subsidies were assigned had in fact started to take shape a bit earlier, with the introduction of a new grading system for the subsidy programme. The 'Federal Finance and Subsidy Housing Scheme' was launched by CONAVI in 2007 as a way to increase the purchasing ability of the low-income population who were eligible for a federally managed mortgage in order to improve, build or buy a new or existing house (DOF 2007). The subsidy was granted in combination with a mortgage so, in many cases, it was only visible to the recipient as a reduction in their down or monthly payments. The only precondition to access these subsidies was a function of the recipient's income (up to 2.6 times the monthly average minimum wage), so it could be used to purchase a house regardless of its quality or location (DOF 2013).[17] In 2011, the programme started to include conditions to make housing units more sustainable (e.g. by favouring medium-rise over low-rise buildings), but it was not until 2013 that it eventually included parameters evaluating the built environment and the location of housing developments using the UCPs. The then-deputy director of CONAVI (who was General Director from 2016–2018) was the mastermind behind the grading system and the UCPs. Together with a small team, including internal personnel and external consultants, they began to think of ways to differentiate 'good' from 'bad' locations for subsidised housing.[18]

[16] Interview with former General Director (2012–2013), CONAVI, Mexico City, 15 April 2019.

[17] Also available for non-enrolled beneficiaries with an income up to five times the monthly average minimum wage.

[18] The consultancy firm hired was CentroGeo, a public research institution affiliated to the Mexican Council of Science and Technology (CONACyT).

The team began the task by defining a set of simple variables that would meet three conditions: they needed to be applied to the 384 cities forming part of the National Urban System,[19] the data sources needed to be publicly available, and the databases periodically updated.[20] This would not be an easy task, as the same variables had to be applied to over 2,400 municipalities with different degrees of urbanisation. Once the variables were defined, a geospatial model was created to determine the areas where subsidies would be granted to favour some locations over others. Due to the limited geospatial expertise within CONAVI, an external consultant was hired to perform the task. Within two weeks, and with a budget of 250,000 MXP (less than 10,000 GBP), a first set of UCPs was created.[21] In this process, CONAVI acquired a different role, transitioning from the technical and academic counterpart of SEDATU to a normative body that would define the rules of operation for the subsidy programme.

The overreliance on technology to assess who gets access to subsidies hides potentially biased decisions, which highlights the techno politics behind using metric assessments for urban policies. In addition, the hasty way in which the UCP policy was created led to many technical mistakes in the early versions of the UCP subsidy zones. As a result, not only were updated versions of the UCPs subsequently published every one or two years, but a complex system or rules and exceptions was put in place to allow or compensate for these errors. This also provided opportunities for developers to take part in the definition of the UCP subsidy zones. A closer look at the technical intricacies of the policy reveals different power relations between the actors and institutions involved, contrasting narratives around the intention of the policy and evidence of negotiation processes at different moments of the implementation process.

4.2 Housing subsidy allocation methodology

This section focuses on understanding *how* and *where* federal housing subsidies are granted. It examines the complex subsidy allocation system and the methodology defining the UCP subsidy zones, including their multiple updates.

The 'Federal Finance and Subsidy Housing Scheme' includes a series of guidelines detailing the requirements for accessing housing subsidies from CONAVI. These guidelines include two

[19] Cities of at least 100,000 inhabitants.

[20] Interview with Director of Land, Infrastructure and Housing Sustainability, CONAVI, Mexico City, 6 September 2017.

[21] See previous footnote.

components: a set of specific rules used for the grading system and a geospatial model used for the definition of the UCP zones (SEDATU and CONAVI 2015b). Within the scheme, there are different guidelines for accessing subsidies depending on the type of housing in question (e.g. new or existing housing, for housing refurbishment or for self-built housing). I focus my analysis on the rules for new housing because it represents the largest share of subsidies granted and because it is the one that uses the UCP zones to evaluate housing eligibility (CONAVI 2020).

4.2.1 Grading system: how are subsidies granted?

There are certain preconditions to be met before a housing unit within a development can be eligible to access federal subsidies. The project must be located outside an area vulnerable to natural hazards, and it must be approved for residential land use in the local development plan. There must be provisions to ensure periodic property maintenance (e.g. having neighbourhood community guidelines and a designated project manager). In addition, the construction must incorporate basic energy and water efficiency technologies and the development must have a solid waste management programme. Except for the approved residential land use, these preconditions are rather easy for developers to comply with, which has led to developers using these as a maximum standard of quality for a housing development rather than a minimum baseline.

The 'Operational Guidelines for Access to Housing Finance Opportunities' for new housing rely on a points-based system divided into four sections: location within the UCPs, proximity to amenities and services (schools, hospitals and public transport), building typology and housing density and the inclusion of energy and water-efficiency eco-technologies in the dwelling (SEDATU and CONAVI 2015a). To access the subsidies, a minimum score of 350 points (out of 1000) is required (Table 4.1). The location of housing within the UCPs is weighted heavily in the grading system, contributing to a maximum of 400 points (250 for Zone 3, 350 for Zone 2 and 400 for Zone 1). This means that a house located in Zone 1 or 2 will automatically obtain the subsidy, without needing to include additional measures (beyond the basic service coverage) such as new amenities, minimum density and/or water- and energy-saving technologies. A house located in Zone 1 or 2 implies that it should in theory be close to existing amenities and services, although there is nothing to ensure that it will comply with the sustainability and densification measures included in the other categories.

Table 4.1 | Grading system for subsidy allocation (2015 version)

Category	Parameters	Max. points	Percentage of total
Location	Within the UCPs	400 (Zone 1) / 350 (Zone 2) / 250 (Zone 3)	40%
Amenities and services	Educational, health and recreational amenities, public transit	270	27%
Densification	Building typology (vertical/horizontal) Housing density within the development	230	23%
Competitiveness (sustainability)	Energy and water efficiency measures (both for housing units and as a project)	100	10%
	Maximum total	1000	100%

Source: Sedatu and Conavi (2015a)

The score assigned to the project's location can be problematic since there is little difference between the points awarded across the different UCPs. This results in a lack of sufficient incentives for developers to build within the best-rated zones (Zones 1 and 2) and most may therefore opt for more remote areas within Zone 3, which tend to have cheaper land and often allow the possibility of assembling large-scale plots (Monkkonen and Giottonini 2017).

Other conditions, such as those included under the heading of 'Densification', are fairly easy to meet and often, indeed, beneficial for the developer. Although based on single-family houses, the developers' established housing model tends to concentrate a high number of small houses in a given area and can therefore reach relatively high housing densities (Monkkonen 2011a). Regarding the building typology, the requirement is for vertical housing to include a duplex unit plus a single-floor flat, or a building of stacked single-floor flats, reaching a total height of three storeys or more, which is also easily achieved. This implies that developers could get up to 230 points just by modifying their architectural design in ways that would benefit their business model by having more houses to sell in a smaller area.

Energy- and water-saving technologies are included under the 'Sustainability' heading despite being preconditions to accessing subsidies, so these are effectively duplicating the criteria. Other measures in this category include urban and architectural design elements (e.g. providing sidewalks at least three-metres wide, including at least two access roads to the development and providing a certain number of trees), which are also relatively easy to incorporate.

To comply with the category of 'Amenities', however, may imply a larger investment from the developer. Since most of the newly built projects are in remote locations, it is unlikely that they will be close to existing schools, hospitals and other public amenities in the area. It would therefore require considerable investment to include the amenities needed to obtain 270 points. Having said that, most municipalities do require new developments to include a school (day care centre, elementary or secondary school), public spaces and, depending on the size of the development, even health centres and clinics.

The easiest way for a development to meet the minimum required points to access subsidies would be, for example, to obtain the maximum score in the 'Densification' (230 points) and 'Sustainability' categories (100 points) and then ensure that the development is close to at least one public amenity (e.g. a day care centre at a maximum distance of 700 metres, equating to 40 points). It was not until the publication of the 2017 operational guidelines that location within the UCPs was made mandatory in order to access subsidies, meaning that this category could no longer be replaceable with points 'earned' from the other categories (DOF 2017).

4.2.1.1 Value of subsidies

Beyond these issues with the point allocation, there are important considerations to highlight regarding variations in the value of subsidies granted according to the score and the type of housing to be purchased. With 350 points, the subsidy could only be granted to buy the cheapest housing in the range (between 116,500 and 248,000 MXP, equivalent to £4,570 and £9,750 GBP), for which it would represent between 23% and 50% of the total house price (Table 4.2). For families in the lowest-income bracket this makes the difference between being able or purchase a house or not. For housing at the top of the affordable range (between 291,000 and 388,500 MXP or £11,500 and £15,200 GBP) a minimum of 651 points is required to access subsidies, equivalent to 15% or 20% of the cost of the house. Achieving 651 points would imply obtaining the maximum score in more than three categories (or having a project located in Zone 1 and having the maximum score for either the Densification or Amenities categories).

Table 4.2 | Value of subsidies granted according to score and housing price

House price range	Points											
	350–400	**401–450**	**451–500**	**501–550**	**551–600**	**601–650**	**651–700**	**701–750**	**751–800**	**801–850**	**851–900**	**901–1000**
Top	–	–	–	–	–	–	$58	$60	$62	$62	$64	$64
Mid	–	–	$56	$58	$58	$60	$60	$62	$62	$64	$64	$66
Bottom	$56	$58	$58	$58	$60	$60	$62	$62	$64	$64	$66	$66

Source: SEDATU and CONAVI 2015a. Values in thousands of MXP (1,000 MXP equivalent to £35). Top of the affordable housing price range means houses valued at between 291–388,000 MXP (approx. £11,500–£15,200); middle range means 249–290,000 MXP (£9,750–£11,450); bottom range means 117–248,000 MXP (£4,570–£9,750)

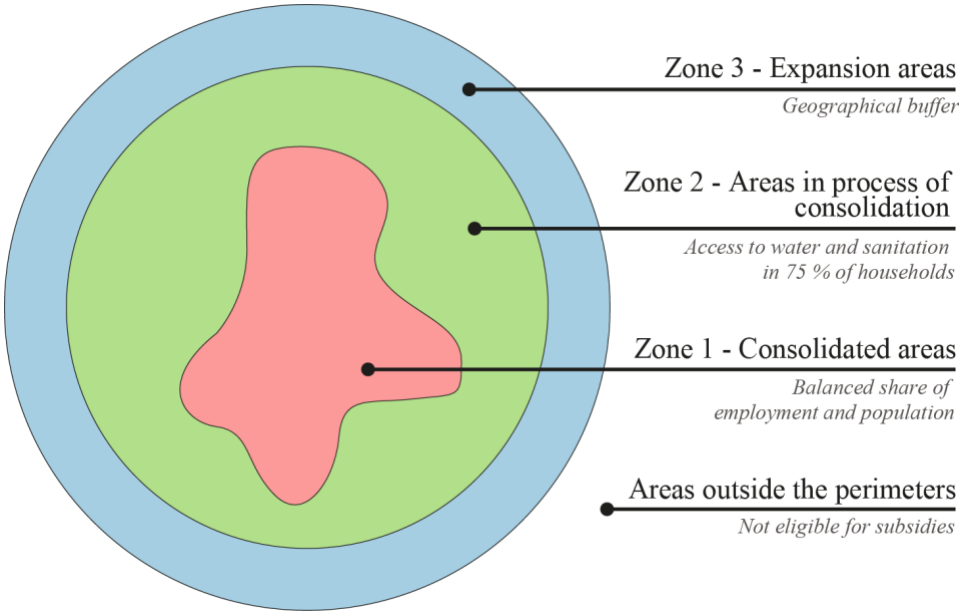
The difference between the lowest value of subsidy available (56,000 MXP or £2,200) and the highest (66,000 MXP or £2,590) is so small (less than 10,000 MXP, or £390) that there is insufficient incentive to motivate developers to pursue a higher score. This results in most developers doing whatever is needed to reach the minimum score of 350 points, as most subsidies granted are used to buy housing at the bottom of the price range (CONAVI 2020).

4.2.2 The geostatistical model of the UCPs: where are subsidies granted?

The UCPs were created as the spatial tool to assess the 'Location' category within the points-based grading system that determines access to subsidies. The methodology behind the geostatistical model used for the definition of the UCPs is published and updated by CONAVI. It includes a simple set of rules that define each of the UCP zones and adds a series of exceptions to these rules. The model is constructed using public sources of information, such as census and economic data and housing stock inventories. The first version of the methodology was published in 2014 and it has been updated three times: in 2015, 2017 and 2018 (SEDATU and CONAVI 2014, 2015b, 2017, 2018).[22] The model includes three main zones that are based on different levels of consolidation of the urban fabric (Figure 4.1).

[22] There was a first version of the UCPs zones developed in 2012, but the methodology behind the geostatistical model was not published until January 2014, when the policy was officially introduced.

Figure 4.1 | Schematic representation of the UCP zones



Source: Author, based on CONAVI and SEDATU (2014)

The 2014 methodology defines the UCPs zones as follows:

- *Zone 1* includes areas with potential employment sources, as these are considered 'the basic unit to consolidate urban development' (SEDATU and CONAVI 2014, p. 3). Employment clusters are calculated using the ratio of jobs to resident population in a particular urban enumeration district (see equation below). First, the share of jobs and population of a particular enumeration district is calculated in relation to the sum of jobs/population in all the enumeration districts of the city. Second, the ratio is then calculated by dividing the share of jobs by the share of population.

$$R_i = \frac{\frac{Jobs\ in\ enumeration\ district_i}{\sum jobs\ in\ the\ city}}{\frac{Population\ in\ enumeration\ district_i}{\sum population\ in\ the\ city}} \geq 1 = Employment\ cluster$$

  R is the ratio of jobs to resident population within the enumeration district *i*. If this ratio equals one or more, then the enumeration district is considered an employment cluster and therefore classified as UCP Zone 1.

- *Zone 2* includes areas undergoing consolidation processes that have at least partial coverage of basic infrastructure. It includes urban enumeration districts where at least 75% of the resident households are connected to the water and sanitation network. Zone

2 areas are only created when they surround or are adjacent to Zone 1.

- *Zone 3* is created by a virtual boundary. It covers areas adjacent to the built-up area acting as a buffer between Zone 2 and the non-urbanised areas. The radius of the buffer zone is related to the population size of the city, ranging from 400 metres for cities under 50,000 inhabitants to 900 metres for cities above one million inhabitants.

The UCPs are published by CONAVI online every time there is an update. The geospatial layers can be downloaded in a Keyhole Markup Language (.kml) format, which allows any user to visualise the UCPs using Google Earth or, according to the user's expertise, other Geographical Information Systems (GIS) platforms. These maps are then compared with maps showing the location of private and public land reserves registered in the National Land Register (RENARET). There is however a series of additional rules for classifying land reserves according to the UCPs.

The position of the land reserve in relation to the different UCP zones determines how it is classified. Land reserves with at least 20% of their area inside Zone 1 or Zone 2 polygons would be automatically classified using the 'best/highest' score of the two. For Zone 3, land reserves are only required to intersect the outer boundary of Zone 3 to be considered within this classification. This means that a large-scale plot that is entirely outside the UCPs would be classified as Zone 3 just by barely intersecting or crossing its boundary. There is however a complementary rule for these cases called the 'contiguity rule'. Land reserves intersecting Zone 3 need to ensure that future development phases would happen in consecutive 200-metre tiers parallel to the outer Zone 3 boundary. Subsequent phases need to continue these tiers, adding 100 metres of development at a time until the totality of the plot is urbanised. Having such lax rules for the inclusion in Zone 3 polygons implies that the outer boundary of Zone 3 is under constant pressure to expand as more land reserves modify the original buffer zone.

The UCP subsidy zones were designed following this set of simple rules. The straightforwardness of the rules has in fact been praised as one of the policy's strengths, as it is relatively easy for developers to understand whether or not the criteria are met.[23] By abstracting urbanisation to its most basic components, the UCPs provided an innovative

[23] Interview with Director of Land, Infrastructure and Housing Sustainability, CONAVI, Mexico City, 6 September 2017.

snapshot of the state of urbanisation throughout the country. The problem was that these 'impromptu' rules left many gaps to fill and, due to the long-term investment relying on the policy, any scores granted were irreversible and so those errors became permanent. This meant that once land was classified as Zone 2, for example, it could not be reclassified in the future as Zone 3 or as being outside the UCPs, even if CONAVI identified technical errors in the UCP zones and corrected them in an updated version. On the contrary, the evolutionary character of the policy meant that an updated version of the UCPs may (and likely will) grant a higher score to a piece of land, simply because the surrounding land has been further urbanised and may therefore have access to jobs and services previously lacking in that area.

4.2.3 Evolution of the UCPs: an added temporality

From its conception, the UCPs were envisaged as a mapping tool that would evolve with time, as pointed out by CONAVI's former General Director:

> The UCPs are a way of looking at geostatistical information and transforming it into the geographies of cities. In that leap from the abstract to the practicalities of the cities' urban fabric, there are many mistakes, technical, mathematical and computational. […] I made it clear that we would need to update the UCPs. Not only when new geostatistical information was published, but also when more advance mapping technologies became available.[24]

One of the most evident limitations of the UCP policy is the way in which they are updated. Besides the methodology being unclear and lacking a solid technical backbone, the way in which and the frequency with which the UCP zones have been updated lacks transparency. From 2014 to 2018, the UCPs were updated every year but for 2016. Developers waited anxiously for the publication of the updated UCPs to see whether their land reserves were included.

There are also some technical issues caused by inconsistencies in the publication dates of the databases used to create the UCPs. Given that the UCPs are based on demographic and geostatistical information, the date of data sources often differs from the date of publication of the UCPs. For example, the 2014 version included three different datasets from the National Institute of Geography and Statistics (INEGI). It included the 2010 Population Census, the 2009 Economic Census and the Directory of Local Units and Enterprises (DENUE) for the

[24] Interview with former General Director (2016-2018), CONAVI, Mexico City, 29 May 2019.

years 2009 and 2011 (Table 4.3). By the time the 2014 UCP subsidy zones were published, some of the information included in their algorithms was already five years out of date.

Table 4.3 | Data sources for the definition of the UCP subsidy zones for each UCP version

Dataset	UCP version					
	2012	**2013**	**2014**	**2015**	**2017**	**2018**
Population Census	2010	2010	2010	2010	2015*	2010, 2015*
Economic Census	2009	2009	2009	2009	2009	2014
Directory of Local Units and Enterprises (DENUE)			2009, 2011	2013	2016	2016
Census geometries (Marco geoestadístico)				2013	2016	2018
National Housing Inventory (INV)				2012	2012	2016
On-the-ground verification (RUV)				2015		2018
Satellite imagery verification (Bing and Google maps)						2018

Source: Author, based on CONAVI (2012–2018). *Midterm population count 2015

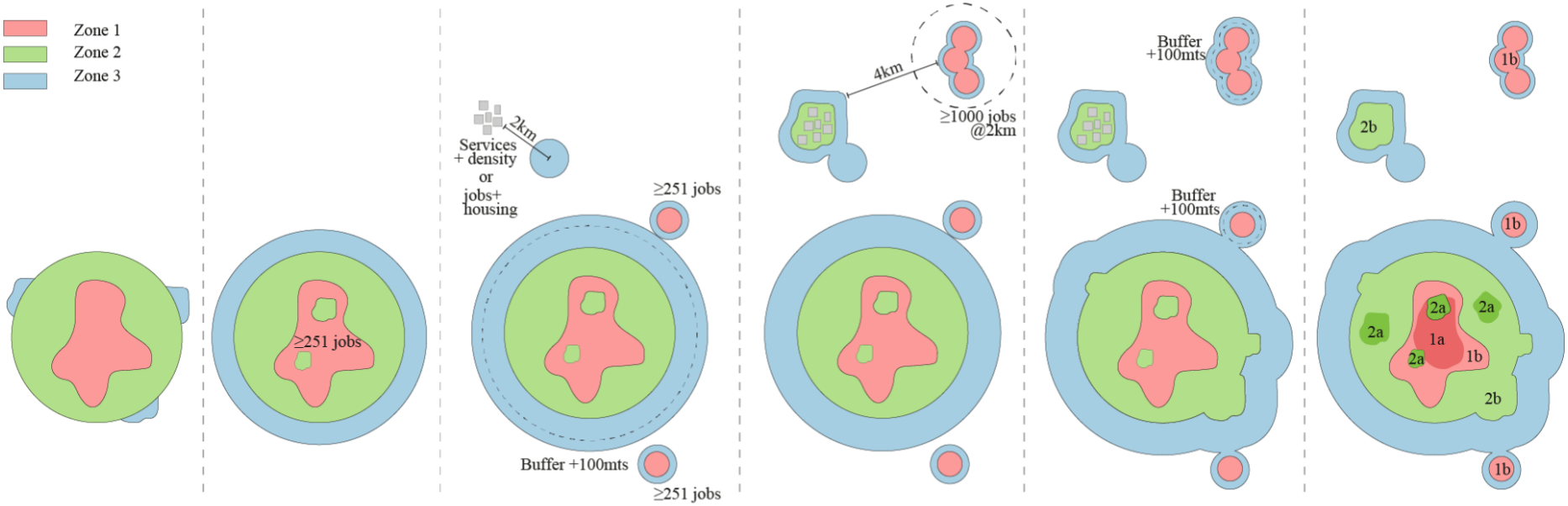
New updated databases were incorporated with each iteration of the UCPs. For example, the 2015 version of the UCPs included—in addition to the population and economic census from the previous version—an updated DENUE database for 2013 (replacing DENUE 2011) and additional datasets from the 2012 National Housing Inventory, as well as on-the-ground verification data provided by the National Housing Register (RUV) (Table 4.3). With each update, new criteria were created to make the UCPs a more accurate representation of the level of urban development. As a result, the criteria became more and more complex, as shown in Table 4.4 and Figure 4.2 with a summary of the rules for defining each subsidy zone included in every update to the UCPs, from 2012 to 2018.

Table 4.4 | Evolution of the methodology for the definition of UCP subsidy zones.

	2012	2013	2014	2015	2017	2018*
Zone 1	AGEBs with job to residents' ratio ≥ 1	AGEBs with ≥ 251 jobs	New Zone 1 in areas with ≥ 251 jobs Buffer created around Zone 1 (radius of 400–900m) when intersecting Zone 3	New Zone 1 in areas with ≥ 1000 jobs (within a 2km radius)		New Zone 1a (Zone 1 + primary school within 1km + secondary school within 2km + health centre within 1.5 km) New Zone 1b (former Zone 1)
Zone 2	AGEBs adjacent to Zone 1 and with ≥ 75% of households with access to water and sewage networks			AGEBs with density of > 20 dwellings/hectare or > 500 dwellings. New Zone 2 based on INV 2012	New Zone 2 in AGEBs based on Population Count 2015	New Zone 2a (Zone 2 + primary school within 1km + secondary school within 2km + health centre within 1.5km). New Zone 2b (former Zone 2) On-the-ground and satellite imagery verification.
Zone 3	N/A	Geographical buffer beyond Zone 2 Variable radius according to city's population (500m–900m)	New Zone 3 if: - within 2km of AGEBs with >75% access to water and sewage and >20 dwellings/ha - within 2km of existing AGEBs with >250 jobs and >500 dwellings Buffer's radius increased by 100m	New Zone 3 if: - around new Zone 1 if within 4km from Zone 3 New Zone 3 based on INV 2012	New Zone 3 as buffers of the new Zone 2 (radius from 200–400m)	

Source: Author, based on CONAVI 2012–2018. Note: Rules mentioned in the subsequent years are cumulative to the previous year unless explicitly noted otherwise. AGEBs = urban enumeration districts. INV = National Housing Inventory. *2018 version includes 394 cities

Figure 4.2 | Schematic representation of the evolution of the UCP subsidy zones



	2013	2014	2015	2017	2018
Added restrictions	✓		✓		✓
Improved accuracy			✓	✓	✓
Added flexibility	✓	✓	✓		✓

Source: Author, based on CONAVI 2012–2018

The criteria behind the different updates can be grouped into three main categories depending on the objectives they followed: adding restrictions, adding flexibility and improving the accuracy of the maps (see Figure 4.2). During the updates to the first versions of the UCP, significant emphasis was placed on adding flexibility to the subsidy zones. The 2015 UCP version is the one with the highest number and types of updates, including adding restrictions and flexibility, as well as improving the maps' accuracy. The most recent versions of the UCPs focused primarily on making them more accurate by updating the databases used and on adding restrictions to the existing zones.

To clarify this process, I describe the evolution of Zone 1 polygons throughout the different versions. The 2014 version of the UCPs added flexibility by creating 'new' Zone 1 polygons that had employment sources but that were not necessarily recognised as urban enumeration districts. These polygons were therefore left out of the original geospatial algorithm used for defining Zone 1. For these cases, 'new' Zone 1 polygons were created in rural enumeration districts that had an employment source with at least 251 posts, regardless of their adjacency to existing Zone 1 polygons. A geographical buffer was created around these 'new' Zone 1 points ranging between 400 and 800 meters (depending on the population size of the city). In addition, a Zone 3 buffer zone was created around these 'new' Zone 1 polygons (again, with a radius between 400 and 900 metres). In some cases, this rule created large new subsidy areas (ranging from two to nine square kilometres) surrounding an existing factory, even if it was far from access to services and from the urban core.

This new rule resulted in very different urban environments being classified as Zone 1, even within the same municipality. Figure 4.3 illustrates this point by showing two different areas of the municipality of Huehuetoca classified as Zone 1 based on their proximity to employment sources. The upper two images are from a commercial street in the centre of Huehuetoca, in front of the Town Hall. They depict a wide variety of small-scale commerce including the entrance of a street market and a relatively high quality of built environment (e.g. paved sidewalks, pedestrian dedicated streets, vegetation, pedestrian crossings and mixed-use buildings). By contrast, the lower image shows the area adjacent to a manufacturing factory in the north of the municipality. This area was likely classified as Zone 1 because of the number of jobs associated with two factories, each of which had at least 251 employees (INEGI 2012). The quality of the built environment is obviously much poorer as there are no paved sidewalks

or trees; the streets are too wide to encourage pedestrian or non-motorised mobility and there are no people to be seen in the street.

Figure 4.3 | Contrasting areas classified as Zone 1 in the Municipality of Huehuetoca

Source: Author. Upper left and right: streets in Huehuetoca's municipal centre. Lower: street adjacent to factories in the north of the municipality.

The 2015 version of UCPs introduced some new restrictions. It modified the rule for the definition of 'new' Zone 1 to require at least a cluster of 1000 employees and made it mandatory for polygons to be located within four kilometres of the closest UCP zone (SEDATU and CONAVI 2015b). Even with those modifications, however, the inclusion of

these ‘new’ Zone 1 polygons was considered to have negative implications insofar as they often widened subsidy eligibility to areas with low-quality in their built environment.[25]

Published in 2018, the latest version of the UCPs has an even more complex methodology that includes new subclassification of Zones 1 and 2 by incorporating variables for proximity to schools and health centres (see Table 4.4 and Figure 4.2). This modification improved the accuracy of the UCPs by effectively classifying the zones depicted in Figure 4.3 as two different Zone 1. The ones in the centre of Huehuetoca became Zone 1a and the area around the factory became Zone 1b. In addition, the 2018 version includes a verification process by which the UCPs consider satellite images and housing registry databases that are verified on-the-ground during field visits.

This example of the evolution of the methodology for Zone 1, illustrates how some of the updates and additional rules in the different UCP versions had significant implications for the amount of land in each UCP zone. Table 4.5 shows the evolution of the total area included in the UCP zones at a national scale. The largest increase in area is observed between 2012 and 2013, when the total area included grew from 1.3 to 2.4 million hectares (79% change). By 2014, it had grown another 8% and since then it has remained relatively stable. The massive increase in the total UCP area during the first years of the policy was to be expected. The UCPs were not made mandatory for access to subsidies until 2015, meaning that there was likely a great degree of flexibility in designing those early versions of the UCPs. The rather conservative initial approach might have also been rapidly relaxed to prevent further damage to the development companies that were already affected by the 2008 financial crisis. The share in the area of each UCP zone has remained relatively stable. The share of Zone 3 is the most predominant, oscillating between 43–46% of the total UCP area since 2013, followed by Zone 2 (31–35%) and then Zone 1 (18–20%).

[25] Interview with Director of Land, Infrastructure and Housing Sustainability, CONAVI, Mexico City, 28 October 2018.

Table 4.5 | Total area included in each version of the UCPs, Mexico

UCP		2012	2013	2014	2015	2017	2018
Zone 1	Area [ha]	393,640	594,874	574,386	484,343	484,745	566,096*
	% of total	29.2%	24.7%	22.1%	18.5%	18.4%	20.7%
	% change		51.1%	-3.4%	-15.7%	0.1%	16.8%
Zone 2	Area [ha]	899,971	768,182	823,915	930,910	941,777	902,035*
	% of total	66.8%	31.9%	31.7%	35.5%	35.8%	33.1%
	% change		-14.6%	7.3%	13.0%	1.2%	-4.2%
Zone 3	Area [ha]	52,806	1,048,620	1,203,141	1,205,491	1,201,454	1,260,155
	% of total	3.9%	43.5%	46.2%	46.0%	45.7%	46.2%
	% change		1,885.8%	14.7%	0.2%	-0.3%	4.9%
Total	Area [ha]	1,346,417	2,411,676	2,601,442	2,620,744	2,627,976	2,728,286
	% of total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	% change		79.1%	7.9%	0.7%	0.3%	3.8%

Source: Author, based on CONAVI 2012–2018. *This area includes the sum of subclassifications A and B

The way the UCP zones have evolved over time, then, has been inconsistent. While some updates involved improving the UCPs' accuracy by adding new data sources to replace outdated ones, other updates added restrictions in an attempt to repair loopholes in the methodology, algorithms and variables by which each subsidy zone was defined. Finally, a series of updates, particularly in the earlier versions of the policy, added flexibility that resulted in expanding almost all subsidy zones. The last series of updates in particular created opportunities that, as will be seen in the next section, allowed developers influence how the UCPs were updated.

4.3 Exceptions and negotiations?

Whereas the previous section dealt with technical modifications of the UCP zones (i.e. updates to databases and evolving algorithms and rules), this section illustrates how real estate developers were closely involved in the design of the policy at different moments of its implementation. Their involvement demonstrates the federal government's interest in ensuring that developers' willingness to invest was not compromised by the new regulations. The involvement of developers in this process is seen in a series of mechanisms discussed in this section, including a customisation of the UCPs, a series of exceptions to the rules and a case-by-case appeal process.

4.3.1 Before implementation: customisation

The conception of the UCPs was not a process free of negotiation. Given that the UCPs had the potential to affect the business model of the construction industry, it was only to be expected that the government would do whatever it could to protect that sector, which had only just recovered from the effects of the 2008 global financial crisis. There was therefore interest from the federal government in assessing the impact that the policy could have on the construction sector before it was fully implemented.[26] Given that the most immediate impact would depend on the location of developers' existing land reserves—assembling land being the first step in the development process, and developers often reserving stock for future investment—it was important to know the exact location of existing private land reserves in relation to the UCPs. In order to do so, the federal government—through CONAVI—encouraged developers to register their land reserves with the National Land Register (RENARET), a voluntary and confidential land repository, in exchange for being consulted about the definition of the UCPs.[27]

On the one hand, the creation of RENARET meant that the UCPs could be 'customised' and adjusted to fit the existing privately held land reserves.[28] The UCP zones were expected to include a certain 'quota' of existing private land reserves to minimise the impact on investment. Once the location of the private land reserves was clear, CONAVI began a long assessment process where the rules for the definition of each UCP zone had to 'loosen up' gradually to ensure the inclusion of most land reserves. The initial methodology of UCP zones excluded more than 80% of private land reserves. As requested by the federal government, CONAVI had to create a series of exceptions that would allow them to include at least 70% of the existing private land reserves registered on RENARET.[29] This probably had significant implications for the effectiveness of the policy, undermining its ability to steer the location of new housing developments.

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[26] Interview with Deputy Director of Land, Infrastructure and Housing Sustainability, CONAVI, Mexico City, 24 August 2017.

[27] See previous footnote.

[28] Interview with Director of Land, Infrastructure and Housing Sustainability, CONAVI, Mexico City, 6 September 2017.

[29] See previous footnote.

On the other hand, RENARET also allowed the federal government to learn for the first time the precise geographical location of developers' land reserves throughout the country, which could have dramatic implications in terms of planning for future urban development. The precise location of land reserves was something usually hidden from other developers to avoid competition and to allow speculatory practices, as explained by a federal official from CONAVI:

> This was the first time that developers shared with the government the precise location of their land reserves. Before, this was a big secret. The condition was that we [the government] were going to review them and, depending on their location, we would support them or not. So, they were forced to register their entire land stock.[30]

This willingness to share the location of their land reserves indicates that the financial incentive to continue the existing housing model was sufficient to lead developers to take the risk of sharing this valuable information and to trust that CONAVI would not reveal it to their competitors. In 2013, more than 67,000 hectares of private land reserves were registered in RENARET throughout the country.[31]

4.3.2 During implementation: making room for exceptions

Although the methodology for the definition of UCP zones was adjusted as much as possible to fit the location of existing land reserves, there were some cases where developers' land reserves were simply too remote for subsidy eligibility to ever be justified.[32] In these cases, a series of 'exceptions' were added if there was proof of the existence of an existing housing development and/or source of employment in the area. These exceptions allowed land reserves that fell outside the UCP zones to be eligible for subsidies. The only restriction was for developers to demonstrate that the land reserve was purchased before 11 February 2013 (when the UCP policy was announced) and that it was registered with RENARET.

Four additional categories were created to classify land beyond the UCPs:

- R1: greenfield without urban land use
- R2: greenfield with urban land use

[30] Interview with Director of Land, Infrastructure and Housing Sustainability, CONAVI, Mexico City, 6 September 2017.

[31] See previous footnote.

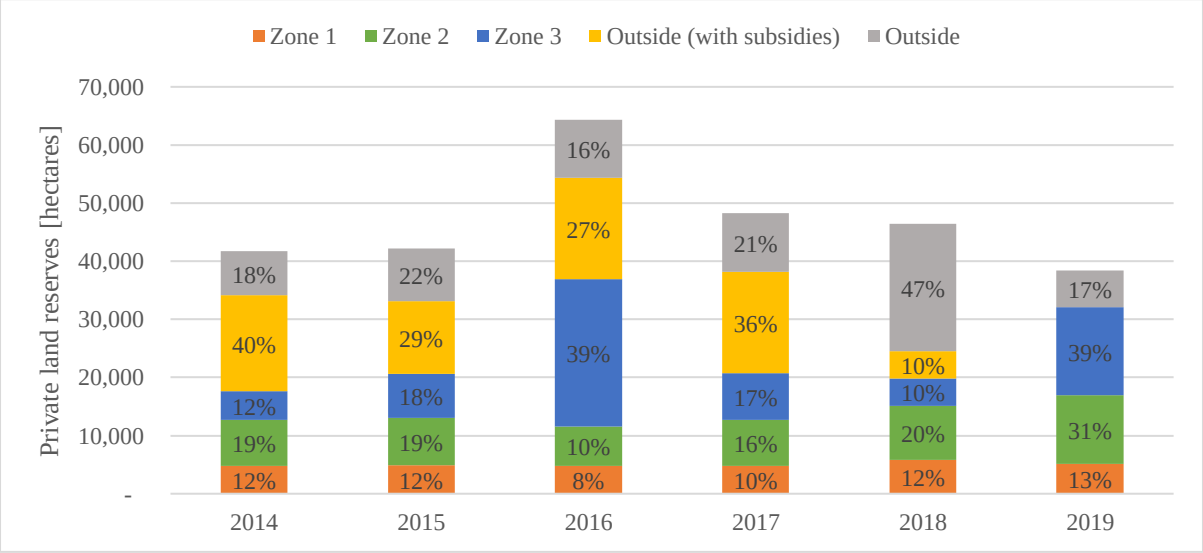
[32] Interview with researcher and former consultant for CONAVI, CentroGEO, Mexico City, 14 November 2018.

- R3: area with residential land use approval and existing investment in infrastructure
- R4: area with residential land use approval, existing investment in infrastructure and newly completed housing or housing in process of being built

In addition, land reserves in proximity (within a radius of two kilometres) to an employment source (with at least 250 posts) and to existing housing developments (with at least 500 housing units) were further classified as type A. Land reserves with either employment or housing, or neither, were classified as type B. This meant that land reserves classified as R4+A, R4+B and R3+A—i.e. land with existing investment in infrastructure or housing construction and in proximity to existing employment and housing—were eligible for subsidies, even when they were located outside the UCPs. The only condition was that these developments needed to obtain a minimum of 400 points in the remaining categories of the grading system (i.e. Amenities and services, Densification, Sustainability). Although the value of subsidies for these cases was capped at 50,000 MXP (or around £1,900 GBP), this was almost equivalent to the subsidies granted to a plot within the UCPs with a 350-point score (DOF 2014).

These new categories led to the housing subsidies programme's inclusion of many land reserves located outside the UCPs. Particularly during the first four years of the policy (2014–2017), these areas outside the UCPs deemed eligible for subsidies represented between 27% and 40% of the total land reserves and in many cases exceeded the area of land reserves within the UCPs (Zones 1, 2 and 3 together) (Figure 4.4).

Figure 4.4 | Total area of land reserves owned by housing developers registered by UCP zone, Mexico.



Source: CONAVI (2020)

During these first years of the policy's implementation, there was therefore direct political pressure on CONAVI to allow most of the existing land reserves to be included in the subsidy programme. Concurrently, a lot of room was left for developers to manoeuvre and make a case for accessing subsidies even when their land was located beyond the UCPs.

4.3.3 After implementation: direct negotiation

Besides such mechanisms to allow private land reserves to be included in the UCPs, there was a third way in which developers could influence their land's eligibility for housing subsidies. The speedy and ad hoc way in which the UCP zones were designed created technical flaws that posed an opportunity for developers to challenge them. In some cases, flaws in the methodology were to be addressed by the annual UCP updates. In other cases, developers claimed truthfully that their property met the requirements, but that this was not reflected in the UCP zones, as this account from a CONAVI official indicates:

> The developers told us that the information was not correct, that we had classified them as Zone 3 but that there was a factory nearby, proving that there was some employment […]. Others said 'My land reserves are not classified within the [UCPs] perimeters, but I built houses there 20 years ago'.[33]

This led to the creation of the Land Reserves Reclassification Steering Committee where developers could prove on a case-by-case basis that their land reserves complied with the requirements and so gain access to subsidies. The work of the committee, however, went beyond technical review. It was recognised as highly political by some officials at CONAVI who argued that 'the reclassification committee was what ruined the [UCP] policy'.[34]

The reclassification committee was made up of the heads of different public institutions related to housing development and urban planning, including SEDATU, CONAVI, INFONAVIT, FOVISSSTE, SHF and RUV. Although the committee had representatives from different institutions, it was SEDATU that determined the dynamics of the assessment process and the frequency of the sessions. As a newly formed ministry, SEDATU suffered a series of leadership changes during the term of President Peña Nieto, changing its minister three times in five years.

[33] Interview with Director of Land, Infrastructure and Housing Sustainability, CONAVI, Mexico City, 18 October 2018.

[34] Interview with Director of Land, Infrastructure and Housing Sustainability, CONAVI, Mexico City, 6 September 2017.

With each change, the committee's sessions became more infrequent, going from monthly to quarterly.

During each session, SEDATU provided the committee's chair and CONAVI a technical counterpart. The appeals were submitted by developers to SEDATU, which then asked CONAVI to check the location of the land in question against the most recent version of the geostatistical model of the UCPs.[35] Developers were asked to provide proof that their land did indeed have access to services, jobs or amenities, according to the score for which they were appealing. Each institution cast their vote and CONAVI had to compile the final verdict. In case of a tie, SEDATU would make the final decision.[36] In 2015 when Jesus Murillo Karam became the Minister of SEDATU, a technical committee was created to review the cases and it would only submit to the steering committee those cases where no unanimous agreement was reached. This technical committee could only approve score reclassification based on the 'contiguity rule' and it continued to operate until December 2017. In early 2018, with the new change of federal government and minister, the steering committee had one last session in which its official dissolution was declared.

In order to evaluate the success rate of the reclassification committee and their ability to undermine the outcomes from the UCP policy, I requested the official rulings via a Freedom of Information request and analysed their outcomes. At a national level, there were 454 appeals submitted between 2014 and 2017, of which 233 were approved (only 10% due to the 'contiguity rule'). This represents a more than 50% approval rate, with most of the appeals seeking to qualify land outside UCPs as falling into Zone 3. Some of the appeals had to go through different iterations in which the developer was required to provide additional evidence (e.g. pictures of existing public amenities, declaration concerning the number of employees in a business). The number of appeals diminished gradually over time, with 75% occurring in the first year. This could be attributed to the fact that to be able to be considered for an appeal, land reserves had to be bought before 11 February 2013. At some point, most of the reserves purchased before this date that could qualify as falling within the UCPs must have run out and there was therefore no point in trying to appeal the status of recently bought land reserves. The States with the highest number of cases were Jalisco (83) and Nuevo Leon (62), which are also

[35] Interview with Deputy Director of Land, Infrastructure and Housing Sustainability, CONAVI, Mexico City, 17 October 2018.

[36] See previous footnote.

those with the most housing developments built in the last 20 years. For the State of Mexico, however, only ten appeals were registered, of which only three had been approved by 2017.

The creation of this committee was a contested topic, and the officials I interviewed expressed very different views on the matter depending on their position. Technical mid-range officials in charge of defining the actual subsidy allocation rules considered that the policy was diverted from pursuing its objectives by the constant updates and loosening of the rules. For them, the policy would have been much more efficient had it remained more rigid and they considered that the committee was detrimental to achieving the policy objectives:

> We consider that the reclassification committee should not have been created; we would have achieved a greater impact, although we do not know if affordable housing prices could have been maintained because we know that Zone 1 and 2 are more expensive than Zone 3.[37]

By contrast, top-rank officials considered that the UCP zones were too rigid. They thought that constant updates to the UCP zones and the creation of the reclassification committee allowed them to be adjusted to reflect the actual urban conditions prevailing and to correct technical inaccuracies in the methodology. The former General Director of RUV expressed this view:

> Sometimes we must accept contingency planning. I do not feel that the UCPs failed when they were updated; rather, it did so when the reclassification committee disappeared. That was an inter-sectoral body that made decisions jointly. When that body disappeared, it was when disorder began.[38]

This statement shows an acknowledgement by the official that both the updates and the creation of the committee may have had their flaws but, more importantly, the adjustments of the UCPs that took place after the committee was dissolved were even worse. It is remarkable, however, the way he saw 'contingency' as an indispensable and almost inevitable characteristic of urban planning.

[37] Interview with Deputy Director of Land, Infrastructure and Housing Sustainability, CONAVI, Mexico City, 17 October 2018.

[38] Interview with General Director, RUV, Mexico City, 24 April 2019.

4.4 Conclusion

The UCP policy has been the most significant national housing and urban land management strategy of the past twenty years. As an attempt to repair cracks in the prevailing housing model, the UCPs introduced restrictions on the location of subsidised housing. For real estate developers, these restrictions appeared to be a radical change in the process of housing development with a potentially negative impact on the housing market. In examining the technical aspects of the rules created for the definition of the UCP zones, however, it becomes evident that different mechanisms were put in place to protect existing investment in housing development. These included a series of frequent updates and exceptions in the methodology for the definition of areas eligible for subsidies, as well as reviews of private land on a case-by-case basis, which illustrate governmental concern to soften the impact of the restrictions. These mechanisms opened up the opportunity for a series of negotiations, occurring at different moments of the policy's implementation and within different groups of actors and institutions.

But have these mechanisms made the UCP policy more or less able to steer urbanisation processes? It makes sense here to return to the RUV General Director who identified the UCPs as 'contingency planning'. Understanding the UCPs as contingency planning resonates with my reflection in Chapter 2 about 'peripheral planning'—based on Teresa Caldeira's (2017, p. 4) conceptualisation of 'peripheral urbanization'—as an alternative approach to conventional urban planning strategies that may respond more effectively to urbanisation processes by encompassing their temporality, transversality and heterogeneity.

The review of the origins and definition of the UCPs provided evidence of transversal interactions that showed unbalanced power relations across and within different institutions. For example, SEDATU clearly had the upper hand in defining the mechanisms to resolve reclassification appeals, while CONAVI acted as a mere technical counterpart. Within CONAVI, there were different responses to the creation of the reclassification committee, with contrasting views depending on the top-rank or technical position of the personnel. In this process, it became clear that there was a power imbalance between these two different groups of actors that created tensions in the reclassification process. Besides these interactions across and within federal institutions we would have expected to see interactions between the federal and local government. But the fact that local or even State authorities were excluded from the design and implementation of the UCPs underscores an important gap and a missed opportunity to achieve improvements in multi-level urban governance. Considering that urban development

plans are defined and implemented locally, it would have been logical to include these actors in the definition of an instrument that hast the potential to affect urban development processes. This failure to include local governments is one of the most criticised aspects of the UCPs. The lack of a collective representative of local governments may however explain why they were left out of the conversation. How would those in charge have managed to include the views of more than 2,400 municipalities across the country? In addition, the outdated state of most local urban development plans (and, in many cases, the lack thereof) made it even harder to include local considerations in the definition and implementation of the UCPs (see Chapter 7).

The ever-changing methodology for defining the UCP zones and thus determining eligibility for subsidies also provides an example of the temporality of planning against the rapid changes in urbanisation processes. As new data became available, a series of modifications attempted to improve the UCPs' ability to represent accurately the processes of urbanisation. In this process, technology played a key role while a series of initially simple algorithms were meant to encompass the particularities of urban development across all the nation's cities. The simple exercise of recording the degree of urbanisation at a national level in a single platform (the UCPs) represents in itself an advance in urban planning—particularly considering the often inaccurate/incomplete information about urban development held at the local level. At the same time, the multiple updates added complexity to these algorithms which may have also made it more susceptible to manipulation of the rules that allowed their relaxation to favour the inclusion of a larger share of private land reserves.

The methodology also allowed the UCPs to recognise the heterogeneous patterns of urbanisation processes by reducing them (at least initially) to their most basic elements: proximity to employment and services. This could potentially blur the differences between different patterns of urbanisation, whether formal residential developments or consolidated informal settlements with access to jobs or services. Providing a reading of urbanisation that captures the heterogeneity of settlements may also contribute to creating knowledge about the actual degree of urbanisation across Mexican cities.

The ever-changing methodology for the definition of the UCP zones determining eligibility for subsidies (seeking to improve the accuracy in capturing urbanisation processes) and a constant negotiation of the rules (by either relaxing or making them more restrictive) therefore illustrate both the weakest and the strongest points in the UCP policy. While these updates and negotiating processes may have undermined the potential that the policy could have to steer

urban processes, it is still a question of how much the UCPs have actually managed to steer urbanisation, despite the negotiating process. The next chapter therefore seeks to provide evidence of the actual impact of the UCPs on urban expansion and on the location of housing developments. Only after assessing the impact of the policy can we draw conclusions about its real potential and the implications of using housing as a means to control urban expansion.

5 Measuring the effectiveness of the UCPs

This chapter provides empirical evidence to test the effectiveness of the UCPs. While there are several ways of assessing the success or failure of the policy, I focus on the objectives of the policy identified by the public officials in charge of creating it: 'to control urban expansion and to improve the location of housing developments'.[39] As mentioned in the previous chapter, the UCPs make the provision of subsidies conditional on the location of housing developments within three different pre-defined zones, each 'moving' progressively further from the centrality: Zone 1 (urban areas with a balanced share of employment and population), Zone 2 (semi-urban areas where 75% of resident households have access to water and sanitation networks) and Zone 3 (undeveloped area, a geographical buffer beyond the outer boundary of Zone 2). Housing developments outside these zones are not eligible for subsidies. The amount of subsidy granted per housing unit represents up to twenty per cent of the final price of the dwelling and it varies, marginally, depending on the precise location within these zones (SEDATU and CONAVI 2015a).[40] The subsidies are therefore the only instruments with which the policy proposes to steer urban development.

To date, there has been no systematic evaluation of the policy's ability to contain urban expansion by directing social housing to less distant areas and improving residents' access to jobs and urban amenities.[41] When interviewed, public officials highlighted the need for robust quantitative evidence to support an adequate assessment of the policy's effectiveness.[42] The federal government currently measures the effectiveness of the policy by analysing the location of subsidised housing production in relation to the UCPs. While the national share of authorised housing units located outside the UCPs decreased between 2014 and 2019, most of the units within the UCPs are to be found in Zone 3 (CONAVI 2020). This information, published by the National Housing Commission (CONAVI), is based on the National Housing Register (RUV) and is aggregated to municipal level, making it difficult to track and obtain an overview

[39] Interview with Deputy Director of the Land for Housing Department, National Housing Commission, Mexico City, 19 August 2018.

[40] There are some exceptions when the development qualifies for the contiguity rule (see Chapter 4).

[41] Here and henceforth, I refer to social housing as privately developed housing estates that are partially subsidised by the state and which are meant to be occupied by homeowners of the low- and low-to-middle-income population (see Chapter 2).

[42] Interview with Deputy Director of the Land, Infrastructure and Housing Sustainability Department, National Housing Commission, Mexico City, 24 August 2017.

of changes in the location of new housing.[43] In addition, the location of new developments is compared to different versions of the UCPs, which are updated each year (see Chapter 4), so it is impossible to track consistently precise variations in the location of housing in relation to any one version of the UCPs. More importantly, there is currently no information available linking housing location and urban expansion, which is crucial for assessing the effectiveness of the policy. This chapter seeks to evaluate the success (or failure) of the UCP policy in achieving its aims. It does so in three interrelated sections. The first regards the containment of urban expansion; the second, the possibility of an *improvement* in the location of housing developments. The third section compares the findings of the previous two sections to explore whether and to what extent housing developments have contributed to urban expansion.

Although UCPs were created for 384 Mexican cities, this chapter focuses on the Metropolitan Area of Mexico City for its analysis of urban expansion and, in particular, on the metropolitan municipalities in the State of Mexico for its evaluation of housing location. Given that the UCP policy was implemented in 2013, and the most recent population census at the time of the analysis was from 2010, alternative sources were used to estimate metropolitan urban expansion up to 2019 (i.e. census blocks were used for the built-up area and municipal population projections were used for 2019, detailed below).[44] In addition, due to the limited availability of georeferenced sources for establishing the location of housing developments, a database with the areas of authorised housing developments was used for the second section of the analysis. This database only includes the municipalities of the State of Mexico that form part of the Metropolitan Area of Mexico City, where most of the recent housing developments have taken place. Results are presented using two different classifications: the UCP zones and rings of metropolitan urban expansion. This allows results to be analysed in the context of the UCPs and also allows us to investigate how development patterns vary spatially across the metropolitan area.

[43] Created in 2015, the National Housing Register (RUV) is a coordinated task force between federal housing finance institutions that registers information from construction companies in a single and standardised log including housing supply (recording different construction stages), location, size and price (UN Habitat 2011; OECD 2015).

[44] There was a population count in 2015, but this was aggregated at a municipal level. Since I performed this analysis, a new population census for 2020 has been published.

5.1 Urban growth or urban sprawl/expansion?

This section focuses on understanding the last twenty years of urban development processes in the Metropolitan Area of Mexico City in order to assess the extent and rate of urban expansion. To assess whether or not there has been urban expansion, we first need to define what we mean by the term. While urban expansion or urban sprawl—as it is commonly described in literature from the US—has been widely studied internationally, there is no single definition and the term is often (wrongly) used interchangeably with urban growth. Urban growth, however, can be understood as 'the process through which a city changes its spatial structure as a result of an increase in population, normally but not necessarily accompanied by the expansion of its urbanized area' (Reis, Silva and Pinho 2016, pp. 248–249). Urban growth does not necessarily translate into urban expansion; rather, the difference between population growth *and* built-up area growth is what defines whether or not urban expansion occurs. 'Expansion' occurs if the built-up area grows at a faster pace than the population. Conversely, if the population grows faster than the built-up area, we can assume that urban consolidation or densification is taking place.

There have been several attempts to evaluate urban expansion by using different measures, some more complex than others. The most common measure of urban expansion is through population density calculations—that is, by dividing the total population by the total built-up area of a determined city. Population density measures have however been identified as misrepresenting sprawl as they are often based on census blocks that do not necessarily represent the *residential* built-up area (Carlson and Dierwechter 2007). Other approaches include measures of urban form (contiguity, distribution) and urbanisation patterns (centrality, compactness, degree of mixed land uses) (Galster, Hanson, Ratcliffe, Wolman, Coleman and Freihage 2001; Hamidi, Ewing, Preuss and Dodds 2015).

In Mexico, such measures have been used in combination with other socio-demographic indicators to explore the links between urban expansion and economic productivity (Montejano, Monkkonen, Guerra and Caudillo 2019), housing financing (Monkkonen 2011a) and access to urban amenities and services (Eibenschutz and Goya 2009). Most of these studies associate urban expansion in the last two decades with two interrelated processes of urban development: one that happens incrementally and outside the formal planning structures (i.e. irregular settlements) and one that is planned and built in accordance with the regulations (i.e. social housing developments) (CIDOC and SHF 2014; Connolly 2019).

Urban expansion in Mexico is also different from what is usually associated with 'American' urban sprawl. While sprawl in the US is often characterised by low density and homogeneous land uses, Mexican sprawl often has high densities and a relatively balanced land-use mix (Monkkonen 2011a). This applies to social housing as well as irregular settlements, although the latter tend to increase their density progressively over time because of a process of infill affecting initially empty plots. In terms of land use, US sprawl is often associated with exclusively or primarily residential land uses. By contrast, Mexican sprawl tends to have an increasing and evolving number of mixed uses. Irregular settlements in particular are characterised by the gradual appearance of small retail outlets or workshops. Although social housing developments are often planned and built as mainly residential areas, the emergence of 'unauthorised' mixed land uses is common (Monkkonen 2011a). Residents seek these alternatives as a source of local income, motivated by the lack of employment opportunities in their municipalities and the high demand for such services in these residential areas.

There have also been federal efforts to measure urban expansion in Mexico. In 2011, a report from the Ministry of Social Development exposed the magnitude of urban expansion from 1980 to 2010 (SEDESOL 2012). This influential report is widely cited amongst academics and politicians advocating for compact and dense urban growth and was identified by federal public officials as one of the main pieces of evidence that justified the need for an urban containment policy.[45] The report analysed 135 cities and provided quantitative evidence—based on geostatistical analysis—showing that while on average Mexican cities' population had doubled, their built-up area had increased tenfold over the thirty years in question. In fact, more than twenty cities recorded growth in the built-up area to more than twenty times the original size between 1980 and 2010. This seemed to be the case, in particular, for industrial cities or those associated with tourism, regardless of their size. For example, Toluca, an industrial metropolitan area of almost two million inhabitants, had an increment of 3.4 times of the population, while the built-up area increased 26.9 times between 1980 and 2010. By contrast, the tourist destination of Cabo San Lucas, with just over 100,000 inhabitants in 1980, had increased its population by 30 times in 2010, while its built-up area in 2010 was 73 times larger than it had been in 1980 (SEDESOL 2012). In the case of the Metropolitan Area of Mexico City, the largest metropolitan area in Mexico, the population increased 1.4 times between 1980 and 2010, while the built-up area grew 3.5 times (SEDESOL 2012) (Table 5.1). This translates

[45] Interview with Deputy Director of the Land, Infrastructure and Housing Sustainability Department, National Housing Commission, Mexico City, 24 August 2017.

to an increment of almost six million inhabitants and over 130,000 additional hectares of built-up area.

Table 5.1 | Population and built-up area, Metropolitan Area of Mexico City

	1980	2000	2010
Population [inhabitants]	14,122,991	18,396,677	20,116,842
Built-up area [hectares]	51,908	167,081	185,291

Source: SEDESOL (2012)

Looking at built-up area and population growth independently and through periods of time of varying lengths, however, makes it difficult to interpret trends accurately. UN-Habitat provides an indicator, as part of the Sustainable Development Goals, that measures the 'ratio of land consumption rate to population growth rate' (UN Habitat 2016).[46] In this context, land consumption is defined as newly developed urban land, i.e. growth in the built-up area, and its growth rate is divided by the population growth rate. It is important to note that this methodology has been criticised for its lack of consensus around the definition and delimitation of urban areas (Corbane, Panagiotis, Siragusa, Kemper and Pesaresi 2017, p. 4). I chose nonetheless this methodology for simplicity's sake and because it is one of the most commonly used measures of urban expansion. When using this ratio, in theory, a value above one would indicate that the built-up area grew at a faster rate than population, suggesting urban expansion. A value below one would indicate that the population grew at a faster pace than the built-up area, denoting urban consolidation or densification. If the UCPs have had an effect on limiting urban expansion at the metropolitan level, we would expect to see a reduction in this ratio in the most recent period, or at least a stabilisation of the ratio.

Table 5.2 shows the *ratio of built-up area growth rate to the population growth rate* for the Metropolitan Area of Mexico City. In order to obtain this ratio, I first disaggregated the findings of the SEDESOL study—using SEDESOL data for the periods 1980, 2000 and 2010 (SEDESOL 2012). Second, I extended the analysis to 2019, using an official population prediction for the Metropolitan Area for 2019 and the same source for the built-up area used by SEDESOL for the earlier periods (city-block census outlines from INEGI), which was updated for 2019. Third, to make comparisons across the different periods of time, I then estimated the compound annual growth rate both for population and built-up area. Fourth, I

[46] Indicator 11.3.1, which is part of Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable.

obtained the ratio by dividing the built-up area growth rate by the population growth rate. The ratio of built-up area to population growth remained above 1 for all periods studied, denoting urban expansion. Most of this expansion, however, happened during the earliest period (1980–2000), with a ratio of 4.52. The ratio fell to 1.16 between 2000 and 2010 but increased to 1.67 between 2010 and 2019. Given that the UCPs were implemented in 2013, this would imply—at least at the metropolitan level—that the UCPs might not have had the desired effect of containing urban expansion.

Table 5.2 | Ratio of built-up area to population growth rate, Metropolitan Area of Mexico City

	1980	**2000**	**2010**	**2019**
Population [inhabitants]	14,122,991	18,396,677	20,116,842	21,945,583*
Built-up area [hectares]	51,908	167,081	185,291	212,112**
		1980–2000	**2000–2010**	**2010–2019**
a) Population growth rate***		1.33%	0.90%	0.91%
b) Built-up area growth rate***		6.02%	1.04%	1.51%
Ratio of built-up area to population growth rate (b/a)		4.52	1.16	1.67

Source: Author, based on data from SEDESOL (2012) for the years 1980, 2000 and 2010. *2019 population projection from CONAPO (2020), using municipal population projections 2015–2030 (base 1, including municipalities from the two States which, together with CDMX, form the Metropolitan Area of Mexico City. **Built-up area for 2019 from city-block census geometries from INEGI (2019b). ***Author's calculations using Compound Annual Growth Rate=((EV/BV)1/n−1) *100, where: EV=End value, BV=Beginning value, n=Number of years

The reduction in the pace of urban expansion in the period between 2000 and 2010 is consistent with other scholars' findings. For example, Priscilla Connolly (2019) estimated that the pace of urban expansion in the Metropolitan Area of Mexico City stabilised around 2005, suggesting that the rate of urban expansion has been overestimated by official reports, such as SEDESOL's (2012). The discrepancy between findings such as those of Connolly and the SEDESOL report could be attributed to the different data sources employed. Like most urban researchers in Mexico, Connolly uses urban enumeration districts as the smallest unit of analysis. Urban enumeration districts (or AGEBs, from the initials in Spanish) are geographical areas whose populations have similar sociodemographic characteristics. They are defined by the National Institute of Statistics and Geography (INEGI) and constitute the basic geostatistical unit of analysis.[47] Depending on their land uses and population size, INEGI defines them as either rural or urban. Urban enumeration districts are composed of up to 50 city-blocks, whose

[47] https://www.inegi.org.mx/app/glosario/.

combined population adds up to at least 2,500 inhabitants. Rural enumeration districts are larger subdivisions of the municipal area with primarily non-urban land uses. Rural enumeration districts are represented by INEGI as coordinates, meaning that their area is abstracted to a point (rather than a polygon, as for the urban enumeration districts). The population threshold of 2,500 inhabitants therefore has significant implications for what is considered urban and what is rural. As rural areas' population grows, they will eventually be recognised as urban enumeration districts. This is why every five years new urban enumeration districts are added, leading Connolly, among others, to recognise the limitations of using them as a source of information for estimating the built-up area (Monkkonen 2011a; Connolly 2019). Despite these limitations, most researchers use urban enumeration districts because they can be related to other sociodemographic information, such as data from the population and housing or economic censuses.

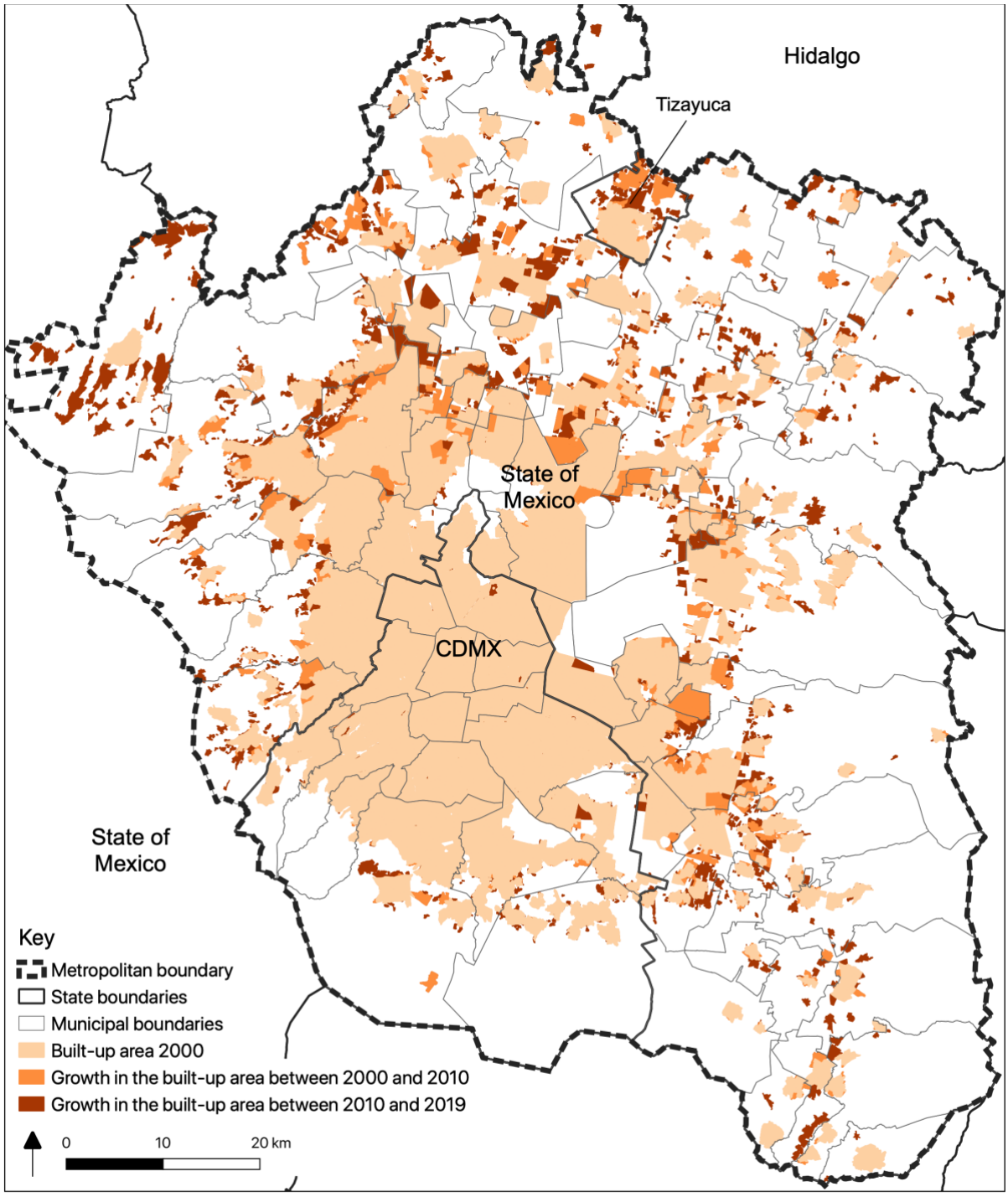
The SEDESOL report uses census geometries at *manzana* or city-block level instead of urban enumeration districts. These geometries, defined by the same institution (INEGI), are based on on-the-ground observations and are used as the geographical reference for census surveyors. These blocks are clearly delimited by streets, avenues or natural features and have predominantly non-rural land uses. City-block geometries, however, are not necessarily equivalent to built-up area, as they could be only partially urbanised; they can include parks or large infrastructure projects (e.g. Mexico City's Benito Juárez International Airport). Despite these limitations, they do offer a more precise picture of the degree of urbanisation than urban enumeration districts (Aguilar and Mateos 2011). City-block geometries are also updated more frequently than urban enumeration districts, which allowed me to use them as the source of information to estimate the built-up area in 2019 and, in combination with official population projections at municipal level, to estimate urban expansion in the period between 2010 and 2019. According to my own calculations, urban expansion in the Metropolitan Area of Mexico City accelerated in the period between 2010 and 2019, reaching a ratio of urban growth to population growth of 1.67. This acceleration reverses the trend observed by Connolly in the previous period but is consistent with studies that predicted urban expansion from 2000 to 2020 (see Suárez and Delgado 2007). In order to shed some light on the differences between these results and to understand spatial variations in the trend of urban expansion across the metropolitan area, the following section disaggregates the results for the latest period, between 2010 and 2019, by groups of municipalities.

5.1.1 Urban growth and the urban rings for the Metropolitan Area of Mexico City

The Metropolitan Area of Mexico City has a complex governance arrangement: it is a functional urban region composed of 76 municipalities belonging to two different States and the capital, CDMX (the former Federal District, referred to from this point onwards as CDMX) (Figure 5.1).[48] Generally, the city has grown concentrically outwards from CDMX proper, expanding into the surrounding State of Mexico and to the north into the municipality of Tizayuca, in the State of Hidalgo. Given the significant differences in patterns of urban development across the metropolitan area, an analysis at State level would not fairly depict spatial variations. Municipalities of the metropolitan area have experienced different amounts and rates of demographic change and different patterns of growth in the built-up area. Peripheral municipalities also exhibit different levels of economic dependency on the central municipalities of CDMX.

[48] This definition is based on the National Urban System 2010 and is still valid in 2020.

Figure 5.1 | Built-up area growth, Metropolitan Area of Mexico City

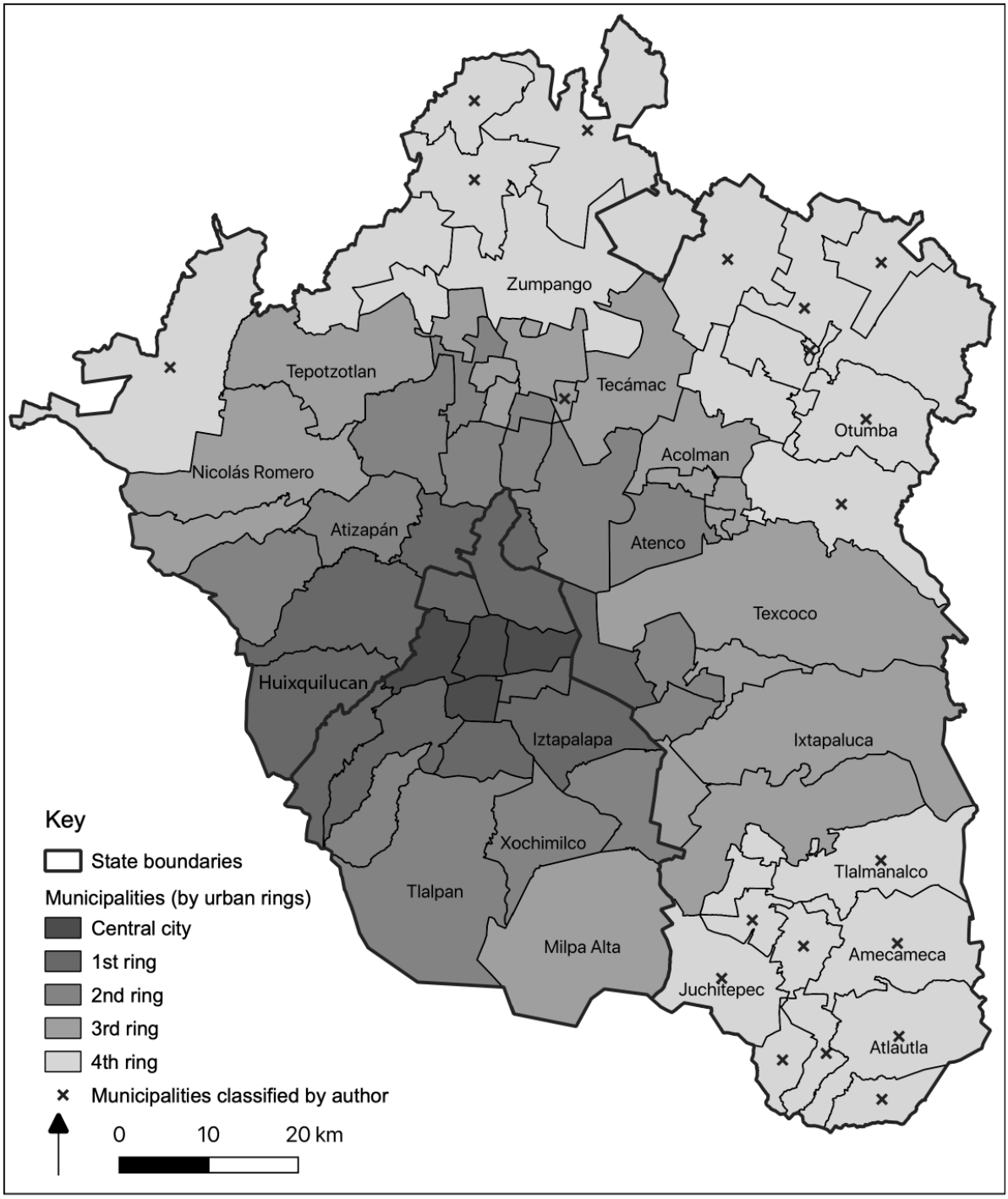


Source: Author, based on city-block census geometries from INEGI (2000, 2010b, 2019b)

There have been several attempts to group municipalities into different 'tiers' or 'rings' of urban growth using different variables (Negrete and Salazar 1986; Delgado 1998). Jaime Sobrino (2003) has used demographic, employment, geographical and functional integration (journeys to work) variables to differentiate urbanisation patterns between central and

peripheral municipalities of the Metropolitan Area of Mexico City, classifying the municipalities into five different 'urban rings' or *contornos urbanos* (Figure 5.2).

Figure 5.2 | Municipalities classified by urban rings, Metropolitan Area of Mexico City



Source: Author, adapted from Sobrino (2003) as described in the text

Given that Sobrino's classification does not include all the municipalities that are now part of the Metropolitan Area of Mexico City, I updated the classification by adding new peripheral municipalities to the 4th ring. In addition, the municipality of Tonanitla, which was only created

in 2010, was included in the 3rd ring based on the neighbouring municipalities of Tecámac and Nextlalpan, both of which donated land to the new municipality. With this updated version of Sobrino's urban rings, I was able to analyse the ratio of built-up area growth to population growth between 2010 and 2019 (Table 5.3). We would expect an analysis of urban expansion by urban ring to show variations between the different parts of the metropolitan area. If the UCPs have had an effect in containing urban expansion, most values for the ratio of built-up area growth to population growth should remain below 1.

Table 5.3 | Population and built-up area growth rate for the Metropolitan Area of Mexico City by urban ring

Urban rings	2010	2019*	Absolute increment	% of total	Growth Rate**
Population					***a)***
Central city	1,721,137	1,791,055	69,918	4.10%	0.44%
1st ring	8,185,172	8,459,929	274,757	16.12%	0.37%
2nd ring	6,170,276	6,681,925	511,649	30.01%	0.89%
3rd ring	3,039,894	3,664,741	624,847	36.65%	2.10%
4th ring	1,000,363	1,224,074	223,711	13.12%	2.27%
Metropolitan Area	**20,116,842**	**21,821,724**	**1,704,882**	**100.00%**	**0.91%**
Built-up area (hectares)					***b)***
Central city	10,513	10,671	157	0.59%	0.17%
1st ring	48,953	51,618	2,666	9.4%	0.59%
2nd ring	56,010	59,787	3,777	14.08%	0.73%
3rd ring	43,680	51,365	7,685	28.65%	1.82%
4th ring	26,136	38,671	12,536	46.74%	4.45%
Metropolitan Area	**185,291**	**212,112**	**26,821**	**100.00%**	**1.51%**
Ratio of built-up area growth to population growth rates (b/a)					***c)***
Central city					0.37
1st ring					1.61
2nd ring					0.82
3rd ring					0.87
4th ring					1.96
Metropolitan Area					**1.67**

Source: Author, based on data from INEGI (2000, 2010, 2019); Urban rings adapted from Sobrino (2003) (see Figure 5.2). *2019 population projection from CONAPO (2020) **Compound annual growth rates (see Table 5.2)

It is evident that the inner and the outer rings have behaved differently, responding to different combinations of population and built-up area growth rates. Three different patterns are observed: divergence, stabilisation and expansion, as we move outwards through the rings.

The central city and 1st ring had contrasting results. With a ratio of built-up area growth to population growth of 0.37, the central city obtained the lowest value recorded (Table 5.3, c). This result was to be expected due to the relatively low population growth in combination with an even smaller increment in the built-up area of central city municipalities. By contrast, the 1st ring recorded a ratio of 1.61, implying urban expansion. Looking at the absolute increment, municipalities in the 1st ring had 200,000 more new inhabitants than the central city. This findings are consistent with the work of Georgina Isunza (2007) for the period 1995–2005, which identified a trend of residential mobility from municipalities in the central city to the 1st ring. It is unexpected to see that the built-up area grew by over 2,600 hectares in the 1st ring, particularly when we consider that municipalities belonging to this ring are still quite central. Figure 5.1 shows, however, that most of the growth between 2010 and 2019 happened in the municipality of Huixquilucan, where there is still a large amount of undeveloped land (i.e. non-urban) and which, moreover, is on the edge of the Metropolitan Area of Mexico City. Huixquilucan has been observed as one of the preferred destinations of intra-metropolitan migration for higher-income groups (Isunza and Méndez 2011).

By contrast, municipalities in the 2nd and 3rd ring had ratios just below one, suggesting a certain stabilisation of urban expansion. Municipalities in these rings absorbed more than 67% of total population growth between 2010 and 2019. Although the built-up area also grew—14% of the total growth happening in the 2nd ring and 29% in the 3rd—it grew more slowly than population. Other researchers have noted that intermediate rings often experience intra-peripheral mobility, where inhabitants (particularly those associated with high levels of education) of municipalities within these rings tend to migrate between them (Isunza 2007; Toscana and Pimienta 2018). This might explain why these rings had similar ratios of built-up area to population growth.

Finally, the 4th ring recorded the highest urban expansion ratio, 1.96. While municipalities in the 4th ring only received 13% of the total population growth, they accounted for 47% of the total growth in built-up area between 2010 and 2019. As we will see in the following sections, this is the ring with the highest proportion of social housing developments. Isunza (2007) observed that the 4th ring is also the one where the largest housing developments are promoted, but not perhaps ever fully inhabited. Municipalities in the 4th ring are also associated with high housing vacancy rates, well above the national average. For instance, Huehuetoca and Zumpango recorded 45% and 40% vacancy rates in 2010, respectively (Reyes 2020b).

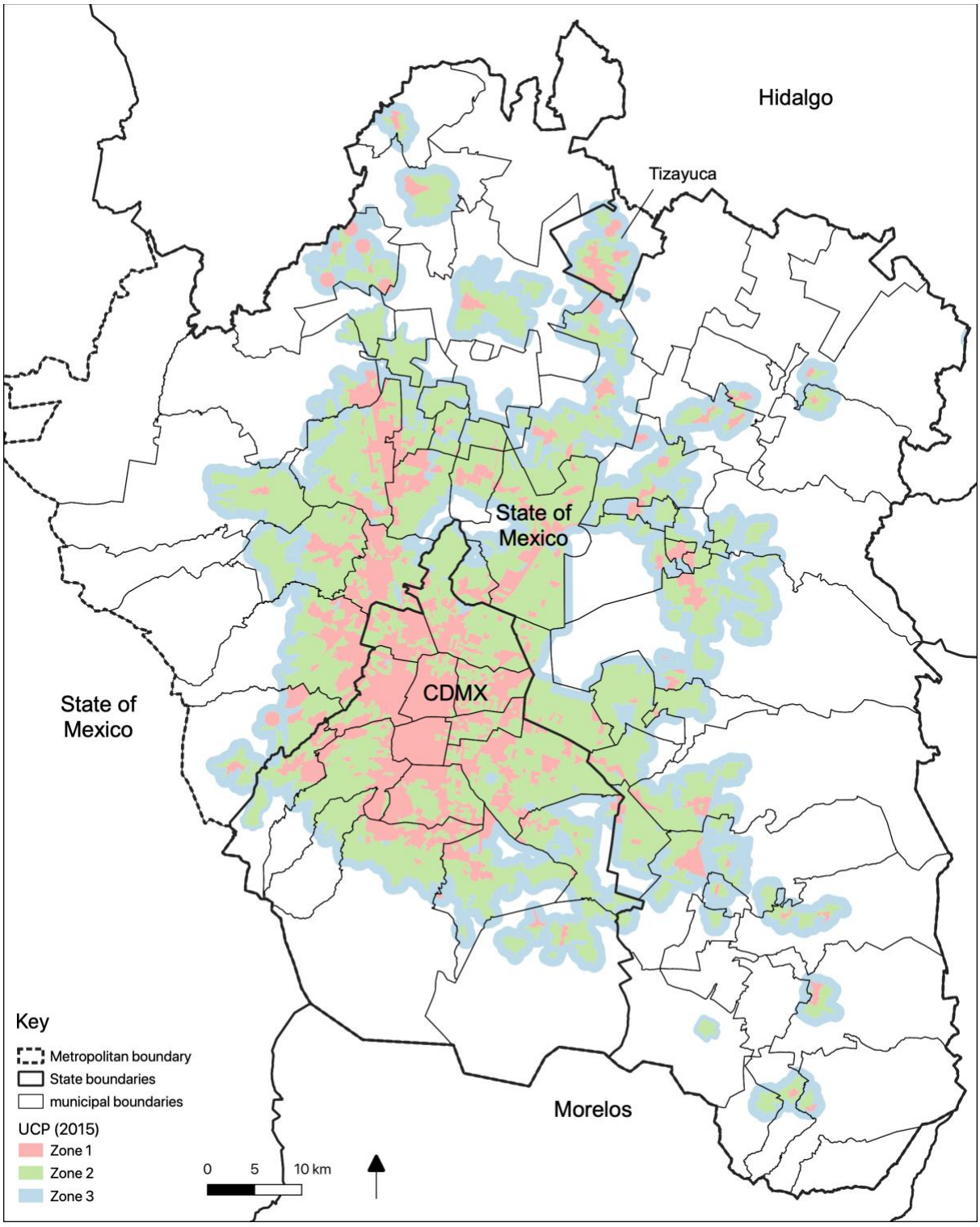
While the aggregated results at metropolitan level suggest, then, that the UCPs have not helped to reduce urban expansion, the results by urban ring display variations as distance from the centre increased. Some areas apparently stabilised, while urban expansion accelerated in the most peripheral municipalities.

5.1.2 Urban growth and the UCPs for the Metropolitan Area of Mexico City

In order to assess more fully the direct impacts of the policy on urban development, we need to understand growth in the built-up area in relation to the UCP zones themselves (Zone 1, Zone 2, Zone 3 or areas beyond the UCPs). Although it is possible to disaggregate growth in the built-up area by each UCP zone using city-block census geometries, it is not possible to estimate population growth by UCP zone for 2019. As previously mentioned, official population projections for 2019 are only available at municipal level. Since each municipality includes sections of different UCP zones in different proportions, it is not possible to estimate the population growth within each zone (at least not until the next population census with more disaggregated data is published). Without population data, it is not possible to calculate the ratio of the built-up area growth to population growth rates. It is nonetheless relevant to look at *growth in the built-up area* by UCP zone in absolute and relative terms to obtain an idea of possible ways in which the pattern of urbanisation could have been altered by the presence of the UCPs.

An important consideration was how to go about selecting the version of the UCPs to use for this analysis. As stated in Chapter 4, the UCPs have been updated almost every year since their publication in 2013. Each of these modifications has implied, to different degrees, a reclassification of the different UCP zones (e.g. changes from Zone 3 to Zone 2 due to urban consolidation of built-up-areas and services) and a constant outward expansion of Zone 3. It is therefore challenging to compare growth in the built-up area against an ever-shifting version of the UCPs. I selected the UCP version published in 2015 as the basis for my analysis of urban expansion and for my subsequent analysis of the location of housing developments (the UCPs in question are shown in Figure 5.3). I avoided using the first version of the UCPs, published in 2013, because the implementation of the UCPs included a two-year transition period to provide time for private developers to familiarise themselves with the policy. In addition, there have not been substantial changes in the total area included in each zone since the 2015 version.

Figure 5.3 | Urban Containment Perimeters, Metropolitan Area of Mexico City



Source: 2015 version of UCPs as defined by SEDATU and CONAVI (2015b)

If the UCPs have been successful in containing urban expansion, we should see a reduction in the growth of the built-up area—or at least a relatively low growth rate—in the areas outside the UCP zones. Table 5.4 indicates, however, that 44% of total growth in the built-up area between 2010 and 2019 occurred outside the UCP zones, an annual growth rate of 5.33%. A

similar proportion of total growth in the built-up area was registered in Zone 3 (47%), with an even higher growth rate of 7.83%. Together, Zones 1 and 2 accounted for only 9% of total growth in the built-up area over this period, with respective growth rates of 0.23% and 0.15%. Most of the built-up area growth, then, happened in Zone 3 and beyond the UCPs. Although we do not have population data at this level of aggregation, it is unlikely that these areas would have had a high population growth rate because most of Zone 3 and of the areas outside the UCPs were not yet urban in 2010. As others have observed, new development is more likely to happen in non-urban areas, often leaving undeveloped land in-between the existing urban area and the new development for future speculation (Eibenschutz and Goya 2009). The UCPs may, however, have been responsible for the increase in built-up area growth rate within Zone 3, i.e. without the policy there might have been even more (and faster) growth in the built-up area outside the UCPs. In this sense, they would also have helped reduce land speculation by promoting development adjacent to areas that were already urban or semi-urban.

Table 5.4 | Growth in the built-up area by UCP, Metropolitan Area of Mexico City

UCPs	2010	2019	Absolute growth	% of total	Growth Rate*
Built-up area	*[hectares]*	*[hectares]*	*[hectares]*		
Zone 1	45,037	45,958	922	3.44%	**0.23%**
Zone 2	107,365	108,846	1,481	5.52%	**0.15%**
Zone 3	12,891	25,405	12,514	46.66%	**7.83%**
Outside	19,998	31,903	11,905	44.39%	**5.33%**
Metropolitan Area	**185,291**	**212,112**	**26,821**	**100.0%**	**1.51%**

Source: Author's calculations, based on data from INEGI (2010 and 2019); UCPs version 2015 from SEDATU and CONAVI (2015b). *Compound annual growth rates (see Table 5.2)

5.1.3 UCPs and urban rings combined: distribution of urban growth in the Metropolitan Area of Mexico City

A common pattern emerged from examining the results by urban rings *and* by UCP zones (Table 5.5). Not only has growth in the built-up area concentrated in the outer municipalities (3rd and 4th rings), but it has also concentrated in the less urbanised zones of each municipality (i.e. Zone 3 and outside the UCPs). In fact, 30% of the total growth in the built-up area between 2010 and 2019 occurred in areas outside the UCPs *and* within 4th ring municipalities. This might suggest that the UCP policy has failed dramatically to contain growth in the built-up area. We must recognise, however, that although 44% of the growth in the built-up area occurred beyond the UCPs, 56% of the growth was located *within* them, particularly in Zone

3 and 3rd ring municipalities (20%). Again, the policy might still have helped to contain growth to a certain extent.

Table 5.5 | Proportion of total growth in the built-up area between 2010 and 2019 by UCPs and urban rings, Metropolitan Area of Mexico City

Distribution of total growth in the built-up area 2010–2019						
UCPs / rings	**Central city**	**1st ring**	**2nd ring**	**3rd ring**	**4th ring**	**Total**
Zone 1	0.3%	1.8%	-0.3%	-0.2%	1.9%	**3.4%**
Zone 2	0.3%	4.5%	1.4%	-0.2%	-0.5%	**5.5%**
Zone 3	-	2.5%	9.1%	20.6%	14.5%	**46.7%**
Outside	-	1.2%	3.9%	8.5%	30.8%	**44.4%**
Total	**0.6%**	**9.9%**	**14.1%**	**28.7%**	**46.7%**	**100.0%**

Source: Author's calculations, based on data from INEGI (2010 and 2019); Urban rings adapted from Sobrino (2003); UCPs version 2015 from SEDATU and CONAVI (2015b)

These results reveal a heterogeneous landscape of urbanisation, with important differences in urbanisation processes according to their location (at the centre or the periphery of the metropolitan area) and to the degree of existing urbanisation in those locations (whether growth took place in urban, semi-urban or non-urban areas).

To gain a better understanding of whether the UCPs were successful in containing growth in the built-up area, it is important to look at the type of housing developments that took place in the newly developed areas. The UCPs could only have direct influence over social housing developments, the only type of housing eligible for subsidies. It would then be inaccurate to conclude that the policy has not worked if we restrict the analysis to 'global' peripheral expansion, although that expansion clearly constitutes a necessary starting point. It is therefore necessary to analyse the newly developed areas in detail and to differentiate housing from other land uses, and particularly social housing from middle- and higher-income housing development.

5.2 The policy in practice: UCPs and housing developments

The main aim of the UCP policy is to control urban expansion while *improving* housing location. The federal officials interviewed identified 'improvement' in the location of housing

as involving greater physical proximity to employment and services.[49] This definition of 'improved' areas is not enough to ensure quality of the built environment, as has been documented by different scholars assessing the built environment of the Metropolitan Area of Mexico City in terms of socio-spatial segregation and proximity to urban amenities, among other variables (Monkkonen *et al.* 2018; Montejano *et al.* 2018). For this study, to assess the UCP policy using the government's own definition, I analysed the location of housing developments in relation to the different UCP zones. As discussed earlier (see Chapter 4), the government's definition of an 'improved' location is reflected in the methodology used to identify the different UCP zones, particularly in the case of Zone 1 (reflecting proximity to employment) and Zone 2 (reflecting proximity to services). Given that Zone 3 is simply defined as a geographical buffer of Zones 1 and 2 combined, the location of housing within Zone 3 could only guarantee limited 'improvement' by comparison to housing located in Zone 1 or 2. Location within Zone 3, however, may still be an improvement by contrast to location *outside* the UCP zones. If the UCPs are having a positive effect on the pattern of urban development, then we should see an increase in the area occupied by social housing projects located *within* the UCP zones—particularly in Zones 1 and 2, but also in Zone 3—and no development should be located outside the UCP zones.

Given the political and geographical differences in the Metropolitan Area of Mexico City, most of the social housing developments of the last twenty years have taken place in the State of Mexico via the spread of a particular housing model: *conjuntos urbanos* (Salinas and Soto 2019). Also referred to as 'the gated communities of the working class' (García Peralta and Hofer 2006, p. 130), conjuntos urbanos are housing developments built by private developers but financed through mortgages issued by federal housing institutions (Puebla 2002) (see Chapter 6 for more detail on housing finance mechanisms). It is worth pointing out that conjuntos urbanos are not always gated, even when they boast 'statement' entrances mimicking the gatehouses of upper-middle-class gated communities. In addition, while the concept is understood and used primarily as equivalent to social housing because of the quantitative dominance of this category across many Mexican cities, it can in fact comprise middle- or high-income housing. Depending on the type of conjunto, whether social, middle- or high-income,

[49] Interview with Deputy Director of Land, Infrastructure and Housing Sustainability Department, National Housing Commission, Mexico City, 24 August 2017; interview with Director of Land, Infrastructure and Sustainability Department, Mexico City, 6 September 2017.

conjuntos can be eligible for federal housing subsidies such as those granted in recognition of their location within the UCPs.

The three States with the largest number of housing units built since 2006 are Nuevo León, Jalisco and the State of Mexico (CONAVI 2020). In fact, the State of Mexico was the first to recognise conjuntos urbanos as a unique legal concept, which appeared first in the 1993 State Human Settlements Law, and later in the 2001 State Administrative Code (Godinez 2009).[50] The State of Mexico also keeps a public record of the authorisations of conjuntos urbanos, available since 1995. Given that the State of Mexico plays a key role in the number of authorisations of conjuntos urbanos and provides information regarding their location, the following analysis on the location of conjuntos urbanos includes only the 56 municipalities of the State of Mexico that form part of the Metropolitan Area of Mexico City.

The development of conjuntos is a lengthy process from authorisation to the construction and occupation of housing units (see Chapter 6), such that it could take some time to see any impact of the UCP policy on the urban development pattern. Seeking authorisation for a conjunto urbano, however, is one of the first things a developer needs to do before being able to apply for federal subsidies. It is therefore possible to analyse the areas authorised for conjuntos and to establish their location within the UCP zones through time, in terms of the predominant housing type (whether social or higher-income housing), as a basis for evaluating the impact of the UCPs on the location of housing projects. If more of the recently authorised areas for conjuntos urbanos fall within the UCP zones, then we may conclude that the policy is having an effect in directing development to these pre-defined zones. If the areas authorised for conjuntos are located in already urban or semi-urban areas (i.e. Zone 1 and Zone 2), or at least adjacent to these areas (i.e. Zone 3), we can conclude that the UCP policy is helping to improve the location of conjuntos urbanos by ensuring that newer ones are closer to urban services and employment opportunities. By contrast, if recently authorised areas for conjuntos fall outside the UCP zones, then it might indicate that the policy is not having the desired effect.

[50] The State of Mexico has a long record of attempts to classify different development patterns and identify the basic needs of housing development projects. Even before 1993, the State already recognised the figure of *fraccionamientos* or private land subdivisions, but the regulations around their authorisation related mainly to the provision of basic infrastructure and accordance with local plans. In contrast, the 2001 Administrative Code, volume V, stipulated stricter regulations for conjuntos urbanos that sought to ensure the provision of a wider variety of services and amenities.

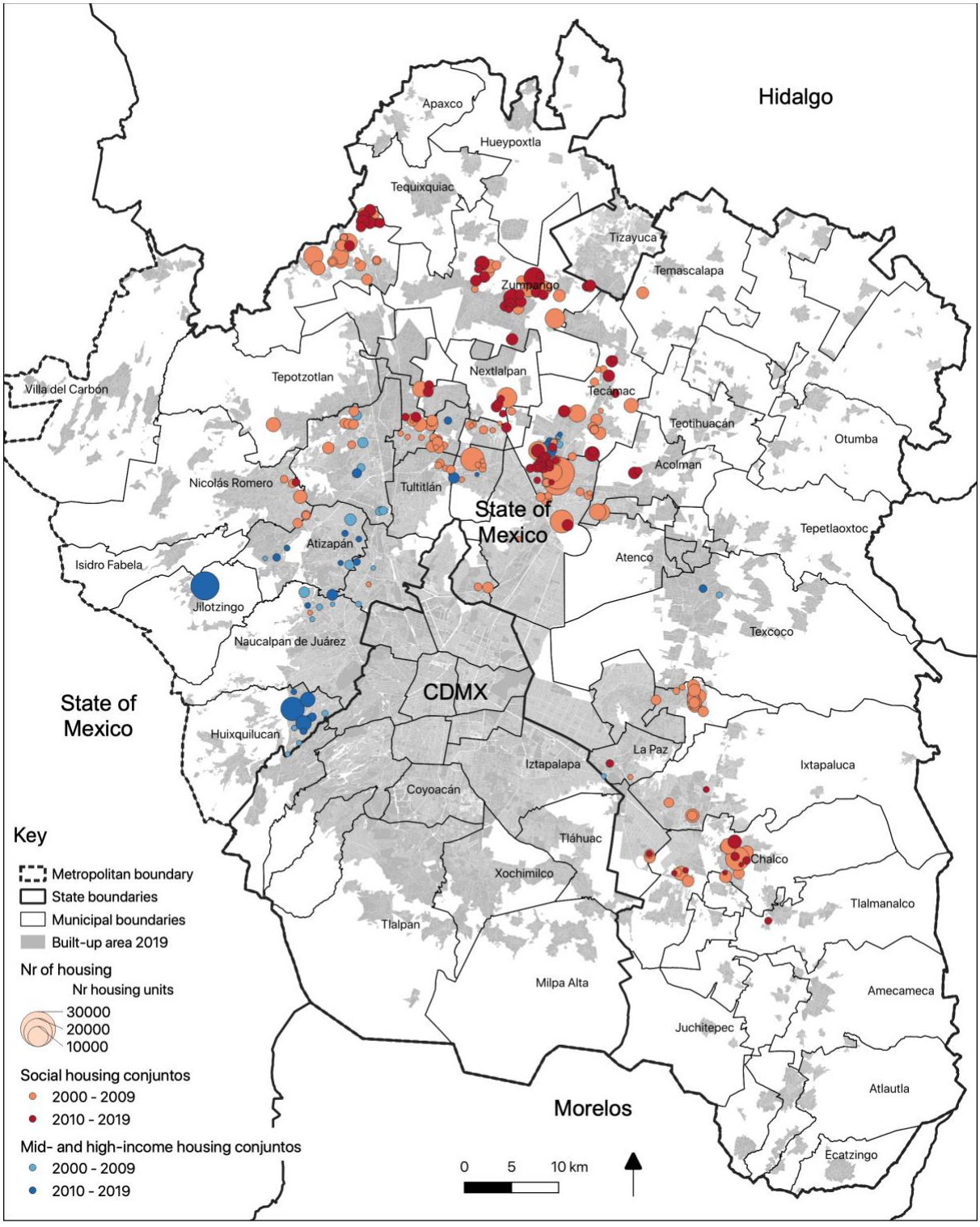
There are some methodological considerations to note here. By law, the authorisations (records of permissions) of conjuntos urbanos have to be published in the State of Mexico gazette. This information was compiled in a database created by Ann Varley and Clara Salazar (2021) who thoroughly crossed-checked it with other sources, including the State of Mexico Planning Department authorisations log (SEDUYM 2019).[51] The database includes information on the number of housing units, the area authorised, the names of the private development companies/individuals who requested the authorisations and a classification of conjuntos by housing type (simplified into social housing and middle-to-high-income conjuntos).[52] This adds up to a total of 401 conjuntos authorised between 1995 and 2018. Using this database, I manually georeferenced each authorisation and, to be consistent with the period of analysis of urban expansion, I updated the database to the end of 2019 using the same sources and methods as Varley and Salazar. In total, I geolocated 377 observations between 1995 and 2019 (Figure 5.4). Given that authorisations do not necessarily mean conjuntos were actually built, but just approved, some conjuntos could not be geolocated and were omitted from the database. This database, therefore, can only be used to provide approximate evidence of the location of housing developments in the State of Mexico. It should be noted that in some cases conjuntos are located outside the built-up area identified by the census city-block geometries (e.g. when a housing development has started construction that has not yet been registered in the city blocks recognised by the census authorities). This means it is not possible to fully identify the city blocks forming part of each conjunto. It is however possible to obtain the areas approved for each conjunto from the official gazette database, which is the information I used to estimate the area of authorised conjuntos. Another important consideration is the fact that the authorisation of a conjunto does not mean that it will actually lead to a finished development. Even though the database was checked to ensure that only conjuntos in the process of being built were included, some conjuntos might never have been completed—as confirmed by evidence from interviews with developers and local government officials (see Chapter 6). In addition, the database includes only developments in municipalities of the State of Mexico that form part of the Metropolitan Area of Mexico City and, although it has been observed that

[51] Special thanks to Prof Ann Varley for sharing this database.

[52] Social housing conjuntos include ‘social interest’, ‘progressive’ and ‘popular’; middle-to-high-income conjuntos include ‘medium’ and ‘residential’. The existence of commercial land uses alongside residential ones is ignored; in the small number of cases where the housing falls into different aggregated categories, the conjunto is allocated to the category with the highest number of houses (Varley and Salazar 2021).

most of the recent development happened in these municipalities, it should be noted that this analysis does not include conjuntos in CDMX or Tizayuca.

Figure 5.4 | Authorisations of conjuntos urbanos in municipalities of the State of Mexico forming part of the Metropolitan Area of Mexico City



Source: Author, based on INEGI (2019) and *Gaceta de Gobierno del Estado de México*

5.2.1 Conjuntos urbanos and the UCPs in the State of Mexico

For the analysis of the location of housing developments, I compared the *area authorised for conjuntos urbanos* in the municipalities of the State of Mexico that form part of the Metropolitan Area of Mexico City with the UCP zones (2015 version). When the coordinates of a conjunto's centroid fell within a UCP zone (Zone 1, Zone 2 or Zone 3) or beyond, the same category was assumed for the total area authorised for that conjunto. There are two periods of analysis, before and after the implementation of UCPs. The first period includes authorisations granted between 2000 and 2009, while the second period includes authorisations between 2010 and 2019. Even though the UCP policy was not implemented until 2013, it was important to identify the location of the area authorised for conjuntos in the earlier period as reference. These periods correspond with the periods used for the urban growth analysis discussed in the previous section, which are limited by the census publication years (2000 and 2010). If the area authorised for conjuntos in the most recent period has remained within the UCPs, then it would seem likely that the policy is having an effect on the location of housing (particularly if this area corresponds with the location of social housing conjuntos). We should however be cautious with the interpretation of this analysis and recognise that there might be other motivations—besides the incentives provided by the subsidies—for developers changing their development practices (see Chapter 6).

Table 5.6 (a) shows both a dramatic reduction in the area authorised for conjuntos, falling by almost half in the second period, and a change in the proportion of the area authorised for each UCP zone: primarily in Zone 2 to begin with, later in Zone 3. The small number of observations of conjuntos authorised *outside* the UCPs (two during the first period and three during the second one) does not allow us to establish a clear trend, as these are most likely exceptional cases. The change between the two periods, however, shows that the area authorised for conjuntos fell in most UCP zones, except for Zone 3, where it grew by 55%. This suggests that the UCP policy might indeed have helped reduce the area authorised for conjuntos outside the UCPs, although the newest conjuntos seem to be primarily authorised in Zone 3, and not in the 'better' zones in terms of proximity to employment sources and access to services (i.e. Zones 1 and 2).

If we disaggregate the information by type of conjunto—whether social housing or middle-to-high-income developments—it becomes evident that there has also been a change over time in the type of conjuntos being authorised (Table 5.6 b, c, and Figure 5.5). The dramatic reduction

in the area authorised for housing conjuntos during the second period seemed to be mainly a product of a reduction in the area approved for social housing conjuntos, which amounted to only a third of the corresponding area in the previous period. By contrast, the area authorised for middle- and high-income conjuntos almost doubled in the more recent period.

Table 5.6 | Area authorised for conjuntos urbanos by UCP in municipalities of the State of Mexico forming part of the Metropolitan Area of Mexico City

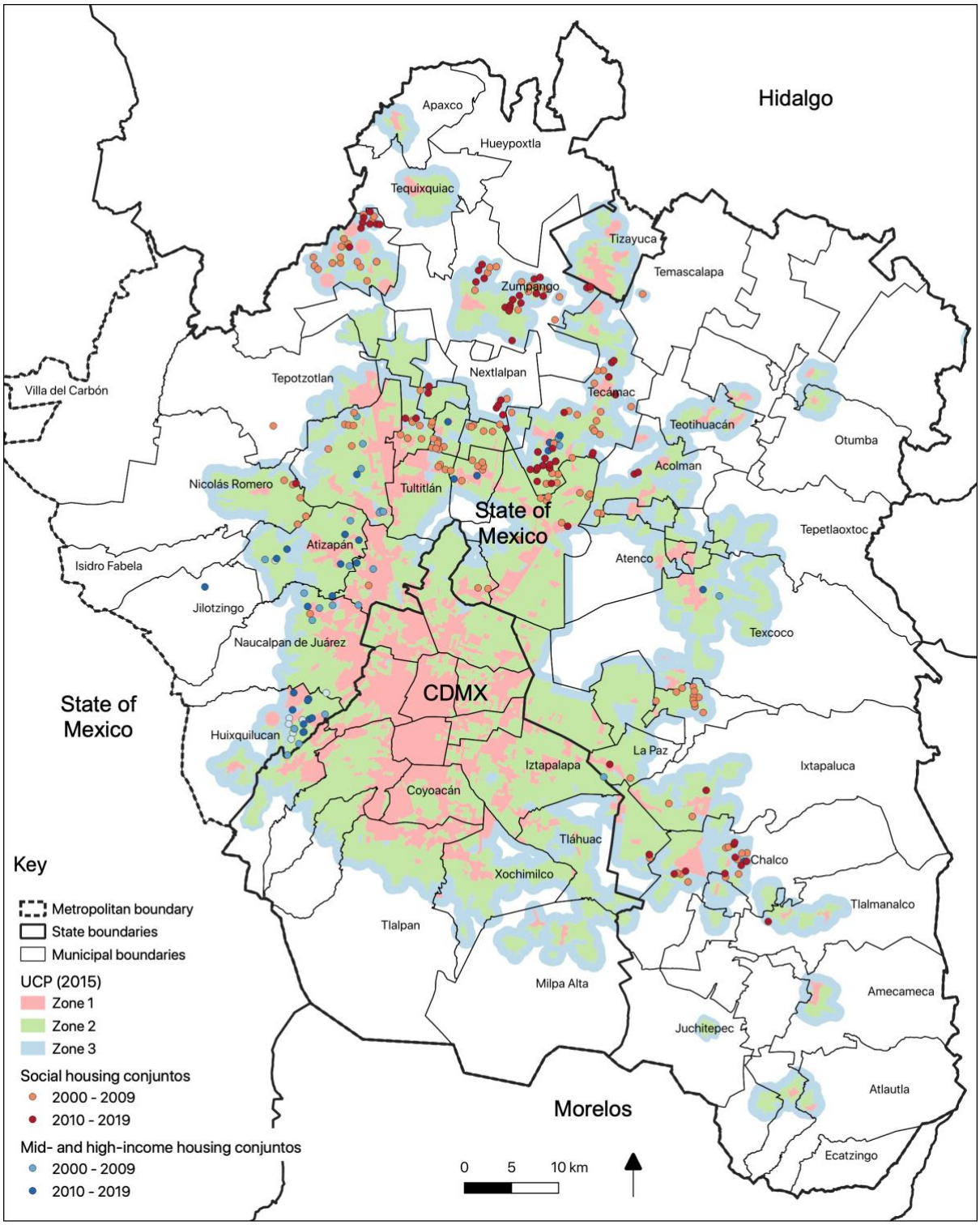
UCPs	2000–2009 Area authorised for conjuntos			2010–2019 Area authorised for conjuntos			Change in area authorised for conjuntos between the two periods [%]
	[N]	*[ha]*	*[%]*	*[N]*	*[ha]*	*[%]*	
a) All housing conjuntos							
Zone 1	17	359	5.1%	10	122	3.7%	-65.9%
Zone 2	151	5,082	71.8%	49	909	27.9%	-82.1%
Zone 3	30	1,262	17.8%	53	1,956	59.9%	54.9%
Outside	2	378	5.3%	3	275	8.4%	-27.2%
Total	**200**	**7,081**	**100.0%**	**115**	**3,262**	**100.0%**	**-53.9%**
b) Social housing conjuntos							
Zone 1	10	87	1.4%	2	56	2.8%	-34.9%
Zone 2	134	4,807	75.1%	34	642	32.1%	-86.7%
Zone 3	27	1,131	17.7%	48	1,263	63.2%	11.7%
Outside	2	378	5.9%	2	37	1.9%	-90.2%
Total	**173**	**6,402**	**100.0%**	**86**	**1,998**	**100.0%**	**-68.8%**
c) Middle- and high-income conjuntos							
Zone 1	7	272	40.1%	8	66	5.2%	-75.8%
Zone 2	17	275	40.5%	15	268	21.2%	-2.7%
Zone 3	3	131	19.3%	5	692	54.8%	427.0%
Outside	-	-	-	1	238	18.8%	NA
Total	**27**	**679**	**100.0%**	**29**	**1,264**	**100.0%**	**86.2%**

Source: Author's analysis, with data from *Gaceta de Gobierno del Estado de México*; SEDATU and CONAVI (2015b). N = number of conjuntos urbanos authorised

In terms of changes between the two periods, the areas authorised for social housing conjuntos has fallen in Zone 1 (-35%) and, more dramatically, in Zone 2 (-88%), while this area has actually *increased* in Zone 3 (12%). Between 2010 and 2019, only two social housing conjuntos were authorised outside the UCPs: 'Paseos del Valle A' and 'B'. These conjuntos are located in the municipality of Nextlalpan and were authorised in 2013 and 2015 as subsequent phases of an existing development. This means that at least one of them was approved close to the implementation date of the UCPs, while the other followed shortly after. Despite being located outside the UCPs, the area authorised for these conjuntos was only one-

tenth of that for social housing conjuntos outside the UCPs in the previous period. These observations indicate a degree of success in the policy insofar as it has kept, at least, most newly authorised social housing developments within the UCPs.

Figure 5.5 | Authorisations of conjuntos urbanos by UCP in municipalities of the State of Mexico forming part of the Metropolitan Area of Mexico City



Source: Author, with data from *Gaceta de Gobierno del Estado de México*; SEDATU and CONAVI (2015b)

In terms of middle- and high-income conjuntos, it is mainly the areas authorised for these conjuntos in Zone 1 which have fallen the most (-76%), while the areas authorised in Zone 3 increased dramatically in the most recent period (427%). This means that what is overwhelmingly responsible for the doubling of middle- and high-income conjuntos overall area authorised is the area of those conjuntos authorised in Zone 3. Areas authorised for middle- and high-income conjuntos grew faster than those authorised for social conjuntos, although social housing conjuntos tend to be larger in size. The absolute area authorised for middle- and high-income conjuntos, however, is still half of the area authorised for social housing conjuntos. Another interesting finding is that middle- and high-income conjuntos have contributed the most to the area authorised beyond the UCPs: 238 hectares in the most recent period. This area corresponds to one single housing conjunto called 'Bosque Diamante', located in the municipality of Jilotzingo which has been subject to scrutiny because its construction involved the deforestation of a large area of woodland. The project's authorisation in 2017 was followed by years of protests by environmentalists and Jilotzingo residents that led to the development's official suspension in 2019 (*La Jornada*, 24 April 2021). The location of middle- and high- income conjuntos in such a remote municipality as Jilotzingo—at more than 40km from the centre of CDMX—is uncommon. Such a location for a middle- and high-income housing conjunto would imply that the development should have other attributes that would make it attractive to the higher-income segment, like access to exclusive amenities (e.g. golf courses, equestrian clubs, etc.) or areas of natural beauty—the latter being precisely the reason for the cancellation in this case.

As we have seen, there is a clear preference for authorising new conjuntos (both social and middle-and high-income) in non-urbanised areas (Zone 3). This is likely related to lower land prices in combination with the possibility for developers of finding larger-scale land reserves in municipalities that have lax land management practices and/or are eager to encourage development of conjuntos, as discussed in Chapter 6 (see Libertun de Duren 2018).

5.2.2 Conjuntos urbanos and urban rings in the State of Mexico

After considering the distribution of areas authorised for conjuntos by UCP, it is also worth examining the spatial distribution of areas authorised for conjuntos urbanos across the different 'rings' of municipalities used as an indicator of centrality. If the area more recently authorised for conjuntos urbanos (particularly those in the 'social' category) has been located primarily in the most central rings (1st and 2nd), it would mean that these are closer to CDMX and, therefore,

to a denser concentration of employment and a higher quality of services. Table 5.7 shows the distribution of areas authorised for conjuntos urbanos, classified by urban ring, for both periods of analysis.

Table 5.7 | Area authorised for conjuntos urbanos by urban ring in municipalities of the State of Mexico forming part of the Metropolitan Area of Mexico City

Urban rings	2000–2009 Area authorised for conjuntos			2010–2019 Area authorised for conjuntos			Change in area authorised for conjuntos
	[N]	*[ha]*	*[%]*	*[N]*	*[ha]*	*[%]*	*[%]*
a) All housing conjuntos							
1st ring	16	196	2.8%	11	719	22.0%	266.6%
2nd ring	53	1,670	23.6%	17	519	15.9%	-68.9%
3rd ring	90	3,549	50.1%	59	1,083	33.2%	-69.5%
4th ring	41	1,666	23.5%	28	941	28.8%	-43.5%
Total	**200**	**7,081**	**100.0%**	**115**	**3,262**	**100.0%**	**-53.9%**
b) Social housing conjuntos							
1st ring	4	52	0.8%	-	-	-	-100.0%
2nd ring	43	1,202	18.8%	7	161	8.0%	-86.6%
3rd ring	85	3,483	54.4%	51	897	44.9%	-74.2%
4th ring	41	1,666	26.0%	28	941	47.1%	-43.5%
Total	**173**	**6,402**	**100.0%**	**86**	**1,998**	**100.0%**	**-68.8%**
c) Middle- and high-income conjuntos							
1st ring	12	145	21.3%	11	719	56.9%	397.1%
2nd ring	10	468	69.0%	10	359	28.4%	-23.4%
3rd ring	5	66	9.7%	8	186	14.7%	182.0%
4th ring	-	-	-	-	-	-	NA
Total	**27**	**679**	**100.0%**	**29**	**1,264**	**100.0%**	**86.2%**

Source: Author's analysis using data from *Gaceta de Gobierno del Estado de México*; Urban rings adapted from Sobrino (2003). The central city ring was omitted because none of the municipalities of the State of Mexico fall within it. N = number of authorised conjuntos urbanos

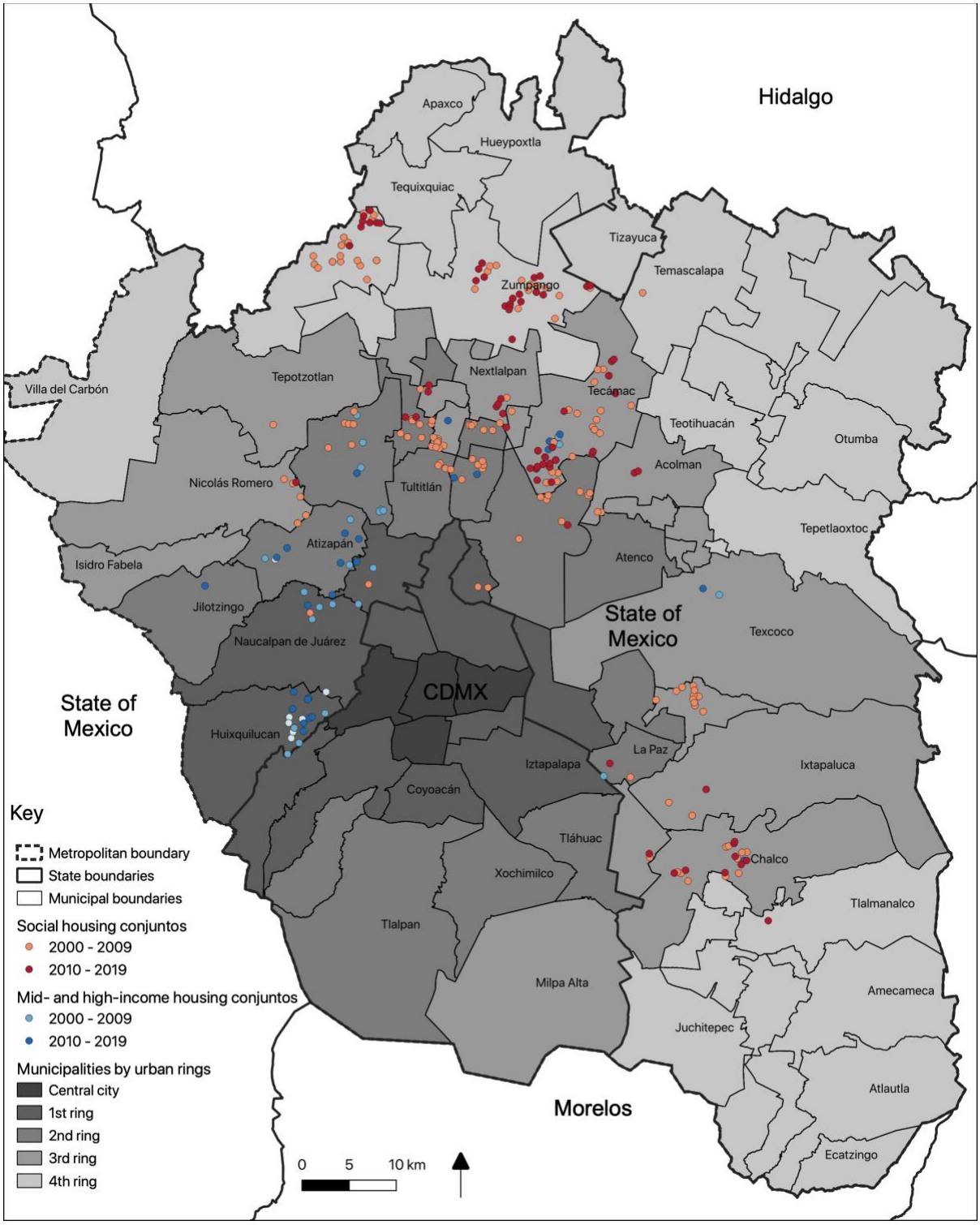
While in the first period half of the area authorised for conjuntos was located in 3rd ring municipalities, the recently authorised areas are better distributed across the rings. The reduction in the overall amount of area authorised is reflected across the rings, except for the 1st ring which saw an almost a fourfold increase in the absolute area authorised for conjuntos (from 196 hectares in the first period to 719 in the second). This is also reflected in the change across periods, with a reduction in all of the rings, except for the 1st, which has witnessed a 267% increase in the area authorised. This increase is unexpected considering that municipalities in the 1st ring tend to be largely urban and therefore have less undeveloped land available for conjunto development. Disaggregating these results by type of conjunto, however,

it becomes clear that the authorisations in 1st ring municipalities during the second period were only for middle- and higher-income conjuntos (57% of the total area authorised), while 92% of the area authorised for social housing conjuntos was located in the 3rd or 4th rings (45% and 47%, respectively) (Table 5.7 b and c). The area authorised for social housing conjuntos has fallen across all the rings, but primarily in the inner ones (1st, 2nd and 3rd ring). The area recently authorised for social housing conjuntos has been largely concentrated in 3rd and 4th ring municipalities. This area has concentrated in some municipalities, like Tecámac, comprising 29% of the total area authorised for social housing conjuntos in the 3rd ring, and Zumpango and Huehuetoca, comprising a respective 33% and 14% of the total area authorised for social housing conjuntos in the 4th ring (Figure 5.6). Two thirds of the area of social housing conjuntos authorised in 3rd and 4th ring municipalities comprised subsequent phases of an existing development, which indicates the developers' preference for location adjacent to existing projects as this tends to speed up the process of development authorisations, as well as reduce costs by connecting to existing trunk infrastructure networks.

Regarding middle- and high-income conjuntos: there has been an increase in the areas authorised in the 1st and 3rd ring, but no such conjuntos were authorised in 4th ring municipalities in either of the periods analysed. Middle- and high-income conjuntos have mainly been concentrated in the western municipalities of the State of Mexico (Figure 5.6). In the most recent period, more than half of the total area authorised for middle- and high-income conjuntos was located in Huixquilucan (1st ring), where 78% of the total area authorised corresponded to 'Bosque Real'. It is worth noting that 'Bosque Real' shares some of the same investors as 'Bosque Diamante' in Jilotzingo (mentioned above as the only middle- to high-income development authorised outside the UCPs). Besides offering a wide variety of exclusive amenities, including two golf courses and a club house, 'Bosque Real' explicitly offers a social status distinction (Müller and Segura 2017; Varley and Salazar 2021). It is common to see areas authorised for middle- and high-income conjuntos within 1st ring municipalities such as Huixquilucan, which can offer proximity to CDMX as well as the benefits of living in the 'countryside'. I did not expect, however, to see that the area authorised for middle- and high-income conjuntos has also increased in 3rd ring municipalities. Looking more closely at the specific cases, it is evident that more than half of the area authorised in 3rd ring municipalities during the second period (112 out of 186 hectares) corresponds to one single conjunto: 'Paseos del Bosque Residencial 2', in Tecámac. As the name indicates, this is the

second phase of an existing development by the firm SADASI, so it is only logical that it would be located adjacent to the first phase.

Figure 5.6 | Authorised conjuntos urbanos by urban ring in municipalities of the State of Mexico forming part of the Metropolitan Area of Mexico City



Source: Author's analysis using data from *Gaceta de Gobierno del Estado de México*; Urban rings adapted from Sobrino (2003)

Looking at these specific housing developments has shed some light on the developers' logic when selecting the location for developments. For social conjuntos it is clear that previous phases of development play a key role in the location of newer developments. For middle- and high-income conjuntos, however, in addition to a location adjacent to previously developed areas, other features such as proximity to the countryside or areas of natural beauty, access to exclusive amenities or to the social status associated with living in a particular conjunto may allow this type of development to be located in more remote areas. Similar trade-offs have been observed regarding the developers' rationale for choosing ejido land—the purchase of which is more complex than for other land—for the development of higher-income housing (Varley and Salazar 2021).

5.2.3 UCPs and urban rings combined: changes in areas authorised for conjuntos urbanos in the State of Mexico

Since the main aim of this chapter is to assess the effectiveness of the UCPs, we should now ask whether or not the UCPs have changed developers' preferences for a determined location and whether this has actually translated to improved location for the recently authorised conjuntos (in terms of proximity to jobs and services). To provide a final assessment of changes in the location of conjuntos, Table 5.8 and Table 5.9 show the distribution of the total area authorised for conjuntos by UCP and by urban ring, disaggregated by type of conjunto, for both periods of analysis. During the first period, 2000–2009, almost half (43%) of the total area authorised for social housing conjuntos was located in Zone 2, within 3rd ring municipalities (Table 5.8, a). By contrast, more than two thirds of the total area authorised for middle- and high-income conjuntos was located in Zone 1 or Zone 2, within 2nd ring municipalities (38% and 29%, respectively) (Table 5.8, b). The pattern observed was predictable in terms of conjuntos' location in relation to the centre/periphery, since middle- and high-income housing tends to be located closer to CDMX and in urban or semi-urban areas, while social housing conjuntos have historically been located in more peripheral municipalities and on less *urbanised* land (Eibenschutz and Goya 2009). The fact that social housing conjuntos were predominantly located in semi-urban areas (Zone 2) may seem surprising as these types of development tend to be located primarily in non-urban areas. We should however acknowledge that this was in the 2000–2009 period and, since the UCP version used for this analysis is from 2015, it is likely that the areas classified as semi-urban in this version were non-urban back in

2000–2009. This reveals the evolutionary character of urbanisation and the way UCPs have responded (or not) to its temporality (see Chapter 4).

Table 5.8 | Share of total area authorised for conjuntos urbanos by UCP, by ring and by type in municipalities of the State of Mexico forming part of the Metropolitan Area of Mexico City, 2000–2009

a) Social housing conjuntos 2000–2009

UCP /ring	1st ring	2nd ring	3rd ring	4th ring	Total
Zone 1	1%	1%	-	-	1%
Zone 2	-	18%	43%	14%	75%
Zone 3	-	-	8%	10%	18%
Outside	-	-	4%	2%	6%
Total	**1%**	**19%**	**54%**	**26%**	**100%**

b) Middle- and higher-income housing conjuntos 2000–2009

UCP /ring	1st ring	2nd ring	3rd ring	4th ring	Total
Zone 1	2%	38%	0%	-	40%
Zone 2	6%	29%	6%	-	41%
Zone 3	13%	2%	4%	-	19%
Outside	-	-	-	-	-
Total	**21%**	**69%**	**10%**	**-**	**100%**

Source: Author's calculations, based on *Gaceta de Gobierno del Estado de México*; UCP version 2015 from SEDATU and CONAVI (2015b). The central city was omitted because none of the municipalities of the State of Mexico falls within it.

Between 2010 and 2019, two thirds of the total area authorised for social housing conjuntos was located in Zone 3, within 3rd and 4th ring municipalities (26% and 33%, respectively) (Table 5.9 a). As we have seen, there were only two social housing authorisations outside the UCP zones and these were located in the 3rd ring (representing 2% of the total area authorised for social housing conjuntos in the second period). So, while the policy seems to be successful in keeping social housing developments within the UCPs, even when these were primarily in Zone 3, the recently developed areas were still located in peripheral municipalities (Table 5.9, b). By contrast, while areas authorised for middle- and higher-income conjuntos were also largely located in Zone 3, most of these were within 1st ring municipalities. It is also evident that those middle- and higher-income areas authorised outside the UCPs—corresponding to 19% of the total for this type of conjunto—were located in 2nd ring municipalities. This means that middle- and higher-income conjuntos located outside the UCPs were more centrally located than social housing conjuntos *within* the UCPs, which were built in the outer rings.

Table 5.9 | Share of total area authorised for conjuntos urbanos by UCP, by ring and by type in municipalities of the State of Mexico forming part of the Metropolitan Area of Mexico City, 2010–2019

a) Social housing conjuntos 2010–2019

UCP /ring	1st ring	2nd ring	3rd ring	4th ring	Total
Zone 1	-	3%	-	-	3%
Zone 2	-	-	17%	14%	32%
Zone 3	-	5%	26%	33%	63%
Outside	-	-	2%	-	2%
Total	**-**	**8%**	**45%**	**47%**	**100%**

b) Middle- and higher-income housing conjuntos 2010–2019

UCP /ring	1st ring	2nd ring	3rd ring	4th ring	Total
Zone 1	2%	-	4%	-	5%
Zone 2	12%	7%	2%	-	21%
Zone 3	43%	2%	9%	-	55%
Outside	-	19%	-	-	19%
Total	**57%**	**28%**	**15%**	**-**	**100%**

Source: Author's calculations, based on *Gaceta de Gobierno del Estado de México*; UCP version 2015 from SEDATU and CONAVI (2015b). The central city was omitted because none of the municipalities of the State of Mexico falls within it

The results discussed in this and the previous sections point out important differences in urbanisation processes according to the type of conjunto (whether social housing or middle- and high-income) and between both periods of analysis. The preference for semi-urban areas observed in the first period (with the aforementioned bias implied in the chosen version of UCPs for the analysis) was soon replaced by a preference for both types of conjuntos for non-urbanised areas in the most recent period of analysis. This would indicate that developers of both social housing and middle- and high-income conjuntos are in fact competing for the same plots in non-urban areas, and this could explain the decrease in area authorised for social conjuntos urbanos. Given that there is a preference for both types of conjuntos to be in non-urban areas, the main difference in the location of housing developments remains their position in relation to central or peripheral municipalities, where social housing conjuntos are still primarily located at the peripheries and middle- and high-income conjuntos at the central municipalities.

5.3 Housing developments and urban expansion

The previous sections have already suggested a possible relation between growth in the built-up area and the location of housing developments, showing contrasting results that point towards the importance of distinguishing between urbanisation patterns caused by different types of housing developments (whether social or middle- and high-income housing) and by their location (whether central or peripheral). This section attempts to bring together the previous analyses, while providing further evidence of the the ways in which housing may or may not contribute to urban expansion as a way to evaluate the effectiveness of the UCPs. It includes an analysis of the growth in the built-up area and of the area authorised for housing developments for municipalities of the State of Mexico forming part of the Metropolitan Area of Mexico City. Results are displayed for two time periods, 2000 to 2009 and 2010 to 2019. The contribution of conjuntos to urban growth is then analysed by UCP and by urban ring.

Once again, it is important to note the methodological limitations of this analysis. Differences in the nature of the databases make comparison challenging. One database refers to the built environment, while the other refers to authorisations for housing projects. Authorisations in the most recent period may include housing developments that have not yet been completed and, therefore, would not be captured in the census city-block geometries. This is why in some cases the proportion of authorised areas for conjuntos may represent more than 100% of the growth in the built-up area.

5.3.1 Growth in the built-up area from conjuntos by UCPs

The following tables (Table 5.10 and Table 5.11) link the results from sections 5.1 and 5.2 to estimate the *contribution to growth in the built-up area by areas authorised for conjuntos* in State of Mexico municipalities forming part of the Metropolitan Area of Mexico City. If the policy is indeed working to reduce urban expansion by improving the location of housing, then we should see a larger contribution of housing to urban growth within the UCPs. Although the absolute area in conjuntos has declined by almost one-half across the two periods, their share of growth in the built-up area has declined even more, from 40% in the first period to 14% in the second (Table 5.10, a). This is a result of the absolute growth in the total built-up area increasing by 32% in the latest period (from 17,656 to 23,266 hectares), while the absolute area authorised for conjuntos has decreased by -54% of the value observed in the first period (from 7,081 to 3,262 hectares).

Table 5.10 | Contribution to growth in the built-up area by areas authorised for conjuntos urbanos by UCP zones and by type of conjunto in municipalities of the State of Mexico forming part of the Metropolitan Area of Mexico City

UCPs	2000–2009			2010–2019			Change in conjuntos' share of growth in built-up area
	Total growth in built-up area	Area authorised for conjuntos	Area in conjuntos as % of growth in built-up area	Total growth in built-up area	Area authorised for conjuntos	Area in conjuntos as % of growth in the built-up area	
	[ha]	*[ha]*	*[%]*	*[ha]*	*[ha]*	*[%]*	*[%]*
a) All housing conjuntos							
Zone 1	1,954	359	18.4%	184	122	66.5%	262.3%
Zone 2	8,268	5,082	61.5%	407	909	223.2%	263.1%
Zone 3	4,276	1,262	29.5%	11,537	1,956	17.0%	-42.6%
Outside	3,157	378	12.0%	11,139	275	2.5%	-79.4%
Total	**17,656**	**7,081**	**40.1%**	**23,266**	**3,262**	**14.0%**	**-65.0%**
b) Social housing conjuntos							
Zone 1	1,954	87	4.4%	184	56	30.7%	592.8%
Zone 2	8,268	4,807	58.1%	407	642	157.5%	170.8%
Zone 3	4,276	1,131	26.4%	11,537	1,263	11.0%	-58.6%
Outside	3,157	378	12.0%	11,139	37	0.3%	-97.2%
Total	**17,656**	**6,402**	**36.3%**	**23,266**	**1,998**	**8.6%**	**-76.3%**
c) Middle- and higher-income housing conjuntos							
Zone 1	1,954	272	13.9%	184	66	35.9%	157.3%
Zone 2	8,268	275	3.3%	407	268	65.7%	1875.0%
Zone 3	4,276	131	3.1%	11,537	692	6.0%	95.3%
Outside	3,157	-	0.0%	11,139	238	2.1%	NA
Total	**17,656**	**679**	**3.8%**	**23,266**	**1,264**	**5.4%**	**41.3%**

Source: Author's calculations, with data from INEGI (2000, 2010, 2019); *Gaceta de Gobierno del Estado de México*; SEDATU and CONAVI (2015b)

The way in which the area authorised for conjuntos contributed to built-up area growth varied by UCP zone across the two periods of analysis. Although in absolute terms Zones 1 and 2 had a smaller area authorised for conjuntos and less growth in the built-up area in the most recent period, the area authorised for conjuntos located in these zones contributed the most to recent growth in the built-up area, increasing from 18% to 67% in the case of Zone 1, and from 62% to 223% in the case of Zone 2 (Table 5.10, a).[53] By contrast, the contribution of recently

[53] The share above 100% means that the area authorised for conjuntos was greater than growth in the built-up area, which is likely because the database used for conjunto authorisations includes conjuntos that are still being developed, which will not be recorded in the census city-blocks until fully built or until a new version of the census is released (see below for more detail).

authorised areas for conjuntos to built-up area growth decreased in Zone 3, from 30% to 17%, and outside the UCPs, from 12% to 3%. In terms of change across the two periods, the contribution of areas authorised for conjuntos to growth in the built-up area decreased in Zone 3 and outside the UCPs, while it increased more than 260% for both Zone 1 and Zone 2. This suggests that the UCP policy successfully reduced the pace of growth in the built-up area by steering new housing projects towards urban and semi-urban areas.

To understand how much of this reduction is directly caused by the UCPs, it is also important to disaggregate the analysis by type of housing developments. Although the overall contribution to growth in the built-up area by areas authorised for social housing conjuntos decreased from 36% to 9% in the most recent period, results varied by UCP zone (Table 5.10, b). The contribution to growth in the built-up area by areas authorised for social housing conjuntos increased in Zones 1 and 2 (from 4% to 31% and from 58% to 158%, respectively), while Zone 3 and the areas authorised outside the UCPs showed a reduced contribution to growth (from 26% to 11% and from 12% to 0.3%). This means that expansion in Zone 3 and beyond the UCPs was not caused by social housing conjuntos located in these zones. Once again, the change in conjuntos' share of growth in the built-up area increased for Zone 1 and 2 and decreased in Zone 2 and outside the UCPs. In the case of recently authorised middle- and high-income housing conjuntos, their overall contribution to growth in the built-up area showed little variation, from 4% in the earlier period to 5% in the most recent one (Table 5.10, c). Results by UCP zone, however, showed that Zone 1 and Zone 2 had the largest increment across both periods (from 14% to 36% and from 3% to 66%), while Zone 3 and the areas authorised beyond the UCPs showed smaller yet positive increments. The change in conjunto's share of growth in the built-up area increased in all Zones, though particularly in Zone 2. These results imply that both social housing and middle- and high-income conjuntos are contributing most significantly to growth in urban (Zone 1) and semi-urban areas (Zone 2), while accelerated growth in non-urban areas (Zone 3) and beyond the UCPs was only partially caused by middle- and high-income conjuntos, and most likely by a different type of development, not necessarily by conjuntos urbanos.

5.3.2 Growth in the built-up area from conjuntos by urban rings

Analysing the data by urban rings, it is evident that most of the recent increase in growth in the built-up area occurred in 3rd and 4th ring municipalities (Table 5.11, a). Recently authorised areas for conjuntos have been also concentrated in 3rd and 4th ring municipalities, while the

absolute area decreased in most of them during the second period. This results in a contrasting trend in the contribution to growth in the built-up area by areas authorised for conjuntos between both periods. While in the first period conjuntos' share of growth in the built-up area increased from the inner towards the outer rings, in the second period this trend was reversed. The authorised area for conjuntos located in the 4th ring comprised 45% of the growth in the built-up area between 2000 and 2009, but only 8% between 2010 and 2019. By contrast, the area authorised for conjuntos in the 1st ring—the only ring with an absolute increment in that area—increased from 21% of the growth in the built-up area to 53% in the most recent period. The change in conjuntos' share of growth in the built-up area shows, however, that it was only within 1st ring municipalities where areas authorised for conjuntos increased their contribution to growth in the built-up area (155%). In the rest of the rings, areas authorised for conjuntos contributed less to growth in the built-up area, particularly in the outer rings (3rd and 4th ring). This would indicate a certain success for the UCPs in steering urbanisation (or at least growth associated with conjuntos urbanos) towards more central rather than to peripheral municipalities, but this could only be corroborated when disaggregating the analysis by type of conjunto.

Table 5.11 | Contribution to growth in the built-up area by areas authorised for conjuntos urbanos by urban ring and by type of conjunto in municipalities of the State of Mexico forming part of the Metropolitan Area of Mexico City

Urban rings	2000–2009			2010–2019			Change in conjuntos' share of growth in built-up area
	Total growth in built-up area	Area authorised for conjuntos	Area in conjuntos as % of growth in built-up area	Total growth in built-up area	Area authorised for conjuntos	Area in conjuntos as % of growth in built-up area	
	[ha]	*[ha]*	*[%]*	*[ha]*	*[ha]*	*[%]*	*[%]*
a) All housing conjuntos							
1st ring	946	196	20.7%	1,358	719	53.0%	155.4%
2nd ring	4,897	1,670	34.1%	2,802	519	18.5%	-45.7%
3rd ring	8,094	3,549	43.8%	7,438	1,083	14.6%	-66.8%
4th ring	3,719	1,666	44.8%	11,668	941	8.1%	-82.0%
Total	**17,656**	**7,081**	**40.1%**	**23,266**	**3,262**	**14.0%**	**-65.0%**
b) Social housing conjuntos							
1st ring	946	52	5.4%	1,358	-	-	-100.0%
2nd ring	4,897	1,202	24.5%	2,802	161	5.7%	-76.6%
3rd ring	8,094	3,483	43.0%	7,438	897	12.1%	-72.0%
4th ring	3,719	1,666	44.8%	11,668	941	8.1%	-82.0%
Total	**17,656**	**6,402**	**36.3%**	**23,266**	**1,998**	**8.6%**	**-76.3%**
c) Middle- and higher-income housing conjuntos							
1st ring	946	145	15.3%	1,358	719	53.0%	246.3%
2nd ring	4,897	468	9.6%	2,802	359	12.8%	33.9%
3rd ring	8,094	66	0.8%	7,438	186	2.5%	206.9%
4th ring	3,719	-	-	11,668	-	-	-
Total	**17,656**	**679**	**3.8%**	**23,266**	**1,264**	**5.4%**	**41.3%**

Source: Author's calculations, based on INEGI (2000, 2010, 2019); *Gaceta de Gobierno del Estado de México*; urban rings adapted from Sobrino (2003). The central city was omitted because none of the municipalities of the State of Mexico falls within it

Once again, the results vary by type of authorised area, whether social housing or middle- and high-income conjuntos. The contribution to growth in the built-up area by recently authorised areas for social housing decreased across all rings, particularly in the 3rd and 4th ring, where it represented 43% and 45% between 2000 and 2009, but only 12% and 8%, respectively, between 2010 and 2019 (Table 5.11, b). In a contrasting trend, the contribution to growth in the built-up area by recently authorised areas for middle- and high-income conjuntos increased across all rings (both in absolute and relative terms), except for 4th ring municipalities where there were no areas authorised for conjuntos (Table 5.11, c). Areas authorised for middle- and high-income conjuntos contributed especially to recent growth in the built-up area in the 1st

ring, increasing from 15% to 53% in the second period. In terms of change in conjuntos' share of growth in the built-up area across periods, we can clearly see that areas authorised for social housing conjuntos have decreased their contribution to growth across all rings, while areas authorised for middle- and high-income conjuntos have increased their contribution, particularly in the 1st and 3rd rings, by 247% and 207% respectively.

Because the policy could only have had a direct effect on the location of social housing conjuntos, these results demonstrate that the UCP policy is not having an impact on directing growth associated with this type of conjunto to core municipalities. The policy does seem, however, to have managed to re-direct urban growth associated with social housing conjuntos towards less peripheral municipalities (3rd ring), effectively reducing the distance to centre for a larger share of recently authorised areas for social conjuntos.

5.3.3 Restricted ability to steer urban development

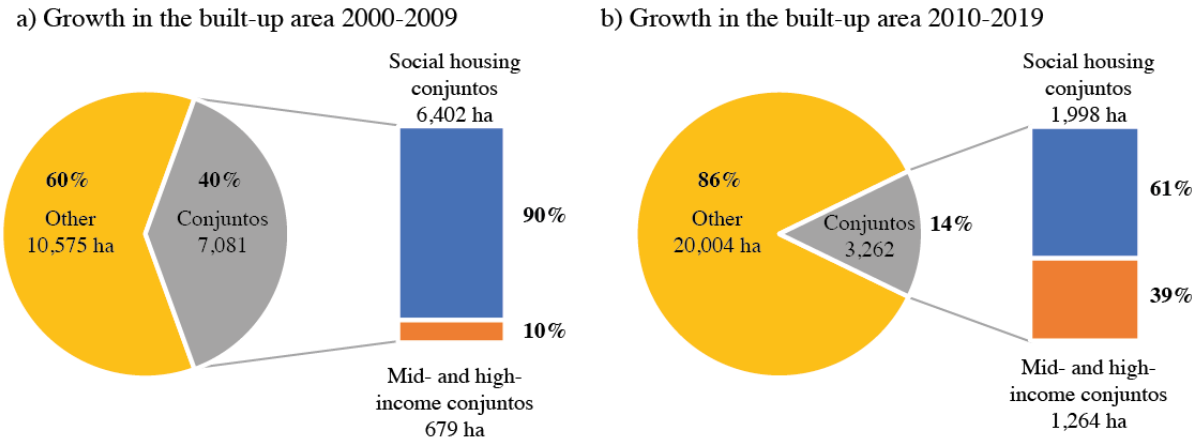
To understand how much of this partial 'success' is truly due to the policy's effectiveness, we need to look at the aggregated results to regain a perspective on the overall contribution of conjuntos urbanos to growth in the built-up area. Table 5.12 and Figure 5.7 show that, while growth in the built-up area increased by 32% between the two periods, the area authorised for conjuntos fell by -54%. This means, therefore, that conjuntos contributed much less to growth in the built-up area in the more recent period. Rather, growth in the built-up area was not so much a product of housing development in conjuntos, but mainly a product of 'other' types of development, which contributed to 89% of the increase in growth in the built-up area.

Table 5.12 | Growth in the built-up area and areas authorised for conjuntos urbanos in municipalities of the State of Mexico forming part of the Metropolitan Area of Mexico City

	2000–2009	2010–2019	Change [%]
Growth in the built-up area [ha]	17,656	23,266	32%
Area authorised for conjuntos [ha]	7,081	3,262	-54%
% conjuntos' share of growth in built-up area	40%	14%	-65%
Area authorised for social housing conjuntos [ha]	6,402	1,998	-69%
% area authorised for social housing conjuntos	90%	61%	-32%
Area authorised for middle-/high-income conjuntos [ha]	679	1,264	86%
% area authorised from middle-/high-income conjuntos	10%	39%	304%
Growth in built-up area from 'other' type of development [ha]	10,575	20,004	89%
% share of other type of development in growth in the built-up area	60%	86%	44%

Source: Author's analysis, based on data from *Gaceta de Gobierno del Estado de México* and INEGI (2000, 2010, 2019)

Figure 5.7 | Proportion of growth in the built-up area authorised for conjuntos, by type of development in municipalities of the State of Mexico forming part of the Metropolitan Area of Mexico City



Source: Author's analysis, based on data from *Gaceta de Gobierno del Estado de México* and INEGI (2000, 2010, 2019)

Since the UCPs are only able, at most, to influence the location of finacialised housing, particularly social housing, then this decline in the area authorised for conjuntos urbanos must be limiting the capacity of UCPs to steer urban development. Furthermore, as we have seen, not only was there a reduction in the area authorised for conjuntos, but there was also a change in the balance between different types of conjunto. In the earlier period, social housing developments represented 90% of the areas authorised for conjuntos, but in the more recent period, only 61% (Figure 5.7). In this sense, under the current definition of the UCPs, their ability to influence urban development and to contain urban expansion would be limited *both*

by the reduced area authorised for conjuntos and by the type of conjuntos being authorised, with the proportion of social housing conjuntos decreasing over time.

One could ask whether the UCPs' ability to steer the location of new urban development could be amplified by including middle- and high-income conjuntos in the policy. To incorporate these developments into a policy affecting the location of conjuntos would, however, imply a different kind of policy, one that would not rely on subsidies alone but would have to include more restrictive mechanisms. Even if the UCPs could somehow include middle- and higher-income conjuntos in the containment policy (through stringent supplementary control mechanisms), and assuming they could potentially manage to keep all new areas authorised for conjuntos within the UCPs, they would still only be able to influence the location of 14% of the recent growth in the built-up area that was associated with conjuntos urbanos.

If indeed conjuntos (both social housing and middle- and high-income) were not that central to the recent growth in the built-up area, then growth-control measures focusing on them will not be enough to reduce urban expansion. In that case, we need to understand the composition of the other 86% of recent growth in the built-up area that is contributing to urban expansion and that could be caused by non-residential land uses or, more likely, by irregular settlements. Although the relation between the UCPs and irregular settlements is not considered part of the policy, such settlements have been found to represent more than half of the total housing stock and to play an important role in urban expansion (Duhau and Giglia 2008; Salazar 2014; Connolly 2019; Varley and Salazar 2021). One must therefore investigate, or at least speculate, how they have contributed to expansion and whether or not the UCP policy has had a direct or indirect effect on their location.

For decades, the main government strategy to tackle informal development has been based on *curative* policies, such as urban land and property tenure regularisation, which have had only limited success (Morales 2019, p. 81). A more *preventive* kind of policy, as Carlos Morales (2019) proposes, should deal with the supply of land, making sure there is enough well-located land for development. In the current policy environment, however, these settlements will simply continue to occupy whatever land is available, mostly in peripheral zones. As Connolly (2019) has observed, irregular settlements tend to grow hand in hand with formal development. Following this logic, it is likely that irregular settlements continue to grow adjacent to new conjuntos, to benefit from the proximity (if not immediate access) to trunk infrastructure networks supplying basic services. More research is needed regarding the extent to which

irregular settlements continue to contribute to urban expansion and the geographies of such developments, but such a task is beyond the scope of this research, which focuses on the influence of the UCP policy on conjuntos urbanos.

5.4 Conclusion

The main aim of this chapter was to assess the effectiveness of the UCPs in containing urban expansion and their ability to improve the location of social housing. The analytical methods used provided an opportunity to understand urban processes in different ways. Although the urban rings and the UCPs have clearly different purposes, classification methodologies and scales of analysis, they complement each other. The urban rings provide a broad municipal classification that assumes a centrality and functional dependency on CDMX. The UCPs provide a classification at a smaller scale where most municipalities have three different zones that respond to different levels of urbanisation (from fully urban to semi-urban and non-urban land). By using both classifications, in combination with different housing types across two periods of analysis, I was able to investigate different urban and housing development patterns before and after the implementation of the UCP policy.

As regards the UCPs' ability to contain urban expansion, results showed that growth in the built-up area has accelerated in the past decade. It has done so at a greater pace towards the peripheries of the metropolitan area and particularly on non-urban land. This initially suggested a failure in any policy designed to reduce the pace of urban growth. Looking at the specific contribution to growth in the built-up area by the area authorised for conjuntos, however, results show that this share has decreased with time, especially the one correspondent to social housing conjuntos. This means that the observed acceleration of urban growth in peripheral municipalities was not caused by conjuntos urbanos but by 'other' types of development. These 'other' types of development may include commercial or industrial development or residential development on a smaller scale (whether low-income or high-income) that is not registered as a conjunto urbano. As discussed above, it could also be related to irregular settlements. Regardless of the type of development contributing to growth in the built-up area, it is clear that for the UCPs to influence fully the whole array of urban development, they would somehow need to incorporate ways to tackle the types of development contributing the most to this growth—whether this is industrial, commercial or caused by irregular settlements. This will likely imply a different kind of policy that could deal with access to land and define different land uses, in essence, an urban planning instrument. Making the UCPs a planning

instrument, however, would deprive it of its conceptual simplicity, giving greater weight to a focus on land management, with less specific attention to housing, and it would imply the risk of crossing the boundaries of local urban planning.

As regards UCPs' ability to improve the location of social housing by ensuring that it is closer to employment and basic services, the policy has been relatively successful. Although most of the social housing projects authorised after the policy's implementation were indeed located within the UCPs, they were not necessarily located in the 'best' zones (in terms of proximity to employment and services). Most of the new social housing conjuntos were still located on non-urban land (Zone 3) and in municipalities within the outer rings (3rd and 4th ring). Even when the policy seemed to have worked in keeping social conjuntos within the UCP boundaries, there is also the question of whether those boundaries successfully represent proximity to employment and services. Given that the quality of services and the variety of employment opportunities increases with proximity to the CDMX (Eibenschutz and Goya 2009), then proximity to employment/services in a peripheral municipality is not the same as proximity to employment/services in a central one. Results also revealed areas authorised for middle- and higher-income housing that, despite being located *outside* the UCPs, were still located in more central municipalities than social conjuntos located *within* the UCPs in more peripheral municipalities. This discrepancy implies that there is a need to review the methodology of the definition of UCP zones in order to include variables that denote centrality, such as their location in relation to the rings of urban expansion. Besides employment variables, the definition of these rings includes demographic and travel behaviour variables that help to differentiate municipalities according to different levels of urbanisation (Sobrino 2003). In addition to centrality, the methodology for the definition of the UCP zones could be improved by incorporating variables that denote accessibility (i.e. access to transport networks), as the benefits of being located in physical proximity to jobs/services can be comparable with being located close to structured transport networks (e.g. metro, Bus Rapid Transit) that could make jobs/services accessible to the residents via a short commute. Indeed, there are peripheral municipalities like Ecatepec that have recently invested in improving the transport networks towards CDMX. It would therefore be wise for a policy like the UCPs to differentiate between well- and poorly-connected municipalities.

This exercise of evaluating the success of the UCP policy led to a classification of urban areas which, at the same time, shed light on the heterogeneous and ever-changing landscape of

urbanisation. Returning to the concept of 'peripheral planning' discussed in Chapter 2—based on Caldeira's work on 'peripheral urbanization' (2017, p. 4), we can recognise in these results the characteristics of temporality and heterogeneity in urbanisation processes.

Proximity to existing conjuntos (whether previous phases of an existing development from the same company, or adjacency to any other development) has proven to be an important factor in developers' logic in choosing land for development. This is predictable given the benefits associated with a location adjacent to an existing development: namely the possibility to connect to existing trunk infrastructure networks. This applies to conjuntos urbanos (of both types) and has also been associated with the preferred location of irregular settlements (Connolly 2019). It would therefore be beneficial for a policy like the UCPs to include the location of existing developments in their methodology. In fact, the UCPs already do this. By defining Zones 1 and 2 in terms of proximity to employment and access to services, they are effectively capturing existing housing developments and then creating Zone 3 as a surrounding non-urban area for immediate development. This implies that the methodology for the UCPs acknowledges the temporality of urbanisation processes.

This review also provides evidence of the heterogeneous character of urbanisation processes and the need for policy instruments to respond to it. As we have seen, the impact of the UCPs on urbanisation processes was different depending on the market addressed by a particular development ('social' or 'middle- and high-income'), on the development's location (whether it was located within the core or the periphery of the Metropolitan Area of Mexico City) and on the type of development (residential or other, e.g. industrial development or irregular settlements). While theoretically the UCPs could capture different types of development in their definition, results showed that the policy only directly affected a particular type of development: social housing conjuntos. The policy does seem to have indirect effects, however, on a shift in the share of the area authorised for social housing conjuntos to an increasingly larger share of middle- and higher-income housing conjuntos in the most recent period. The fact that this change became visible immediately after the policy's implementation implies that the UCPs have indeed contributed to the shift towards a larger share of middle- and high-income housing being authorised. This was to be expected as developers were confronted with additional restrictions on the location of social housing projects, while no complementary measures were taken by the state to ensure the continuous availability of low-cost land within the UCPs. As discussed in the next chapter, however, real estate developers'

reactions to the implementation of the UCPs differed by size and type of company and the strategies they chose would determine their success or failure in adapting to the UCP policy.

6 Real estate housing developers and the UCPs

The role of real estate housing developers has changed in parallel with the transformation of Mexico's housing policy. For a long time, real estate developers focused only on supplying housing for the middle- and upper-income segment of the population and the only housing ownership options for the lower-income population were restricted to the informal land and housing market or a limited amount of state provision. During the neoliberalisation of the economy in the 1990s, when the state housing institutions became finance providers rather than housing developers, the role of real estate developers was transformed, allowing them to gain access to the lower-income segments of the market (Puebla 2002) (see Chapter 2). Urban development became a mere outcome of the official narrative of an urgent need to reduce the housing deficit, which had consequences for the country's urban landscape (Libertun de Duren 2018). Housing policies now not only allowed but actively promoted a focus on housing quantity over quality. This led to a new housing development model that allowed developers to access federal financing to develop social housing, while few restrictions were put on the location and quality of these new housing developments.

In this context, the role of real estate developers became increasingly prominent, to the extent that it became one of the most profitable business sectors in Mexico. Housing-related economic activities contributed 21% of the national GDP in 2011 (CIDOC and SHF 2011). As a result, the geographies and typologies of housing also changed dramatically and, by following this housing development model, developers played a key role in facilitating the displacement of low-income housing towards the urban periphery (as discussed in Chapters 2 and 5) (Reyes 2020c). Although this business model reduced the housing deficit, it also created many negative externalities associated with the low quality and poor location of housing. In response to this, the introduction of the Urban Containment Perimeters (UCPs) implied a radical change of strategy that constrained the developer's business model by introducing restrictions on the location of social housing.

While the previous chapter focused on assessing the effectiveness of the policy in achieving its objectives, this chapter investigates the impact of the UCP policy on the housing development process from the perspective of real estate developers. It does so by examining the housing development process and identifying particular ways in which and moments at which this

process was affected by the UCPs. These moments are key to understanding the ability of the UCPs to steer urban development by restricting the location of subsidised housing.

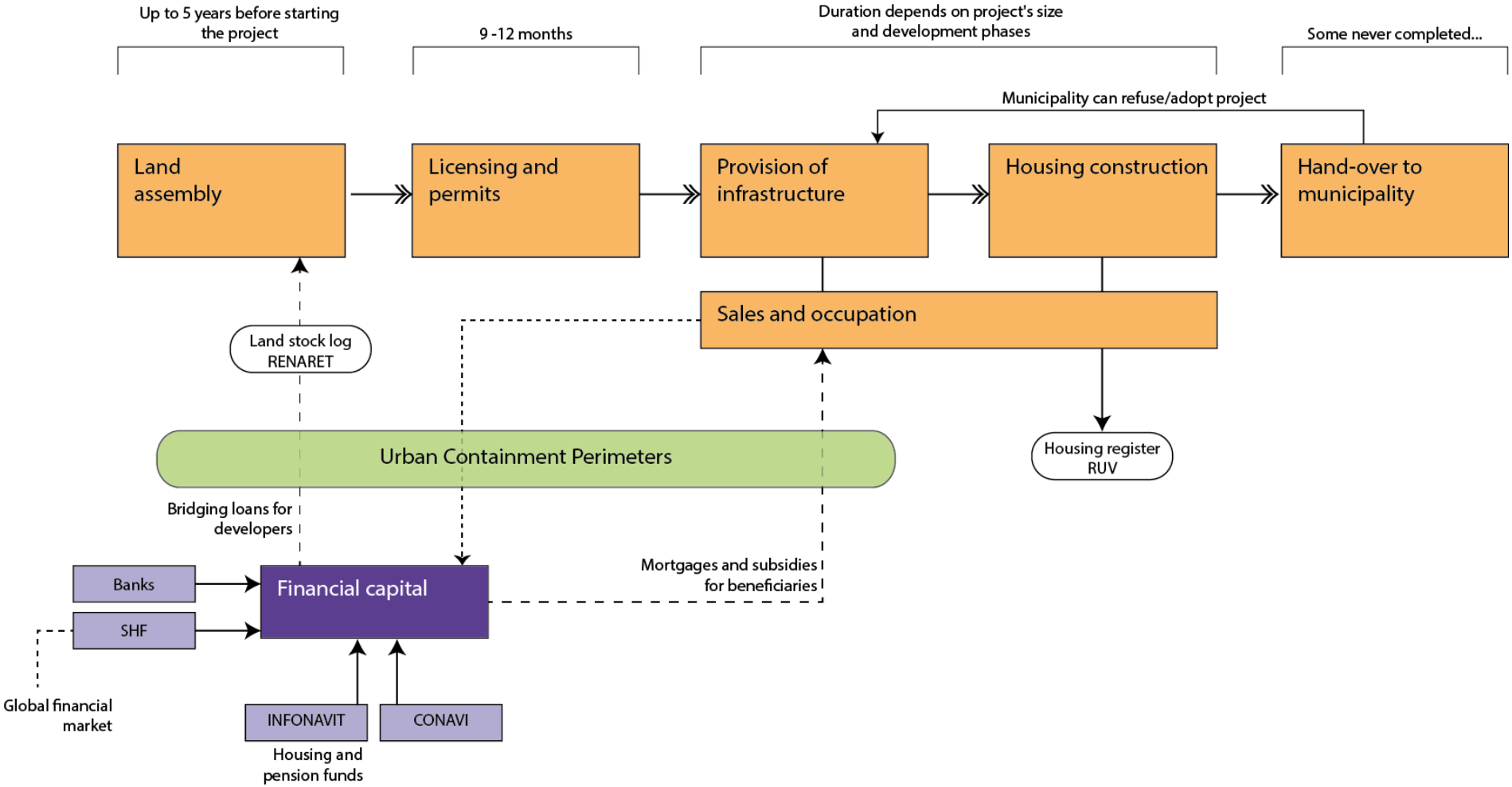
In addition, I consider evidence derived from interviews with some of the main real estate development companies in Mexico to explore their responses to the introduction of the UCPs and the different ways in which the policy affected their business strategies. I corroborate these views by examining the companies' official financial reports and official data regarding the federal housing mortgage and subsidy programmes. While the chapter describes policies and processes that are replicated at a national scale, most of the real estate developers I interviewed had at least one housing project in the Metropolitan Area of Mexico City (specifically, in municipalities belonging to the State of Mexico) (see Appendix A: List of interviews).

6.1 Follow the process: an outline of social housing development

Before discussing the role of real estate developers and how it changed after the implementation of the UCPs, this section outlines the development process of a typical social housing development in Mexico, from land acquisition to occupation and adoption of the completed project by the municipality. During this primarily linear process, which can last a couple of years, housing developers interact to different extents with the federal and local government. Whether directly or indirectly, the implementation of the UCPs seems to have had some impact on different stages of this development process, as discussed in the following subsections.

This housing development process, however, could not have made the housing sector such an economic force if it did not have access to financial capital. Capital is typically brought in during two different stages of the housing development process: during land acquisition (allowing developers to buy land) and during sales (by means of subsidies and mortgages for the final buyers) (Figure 6.1). Looking specifically at these moments when financial capital is accessed is key to understanding the influence of the UCPs on the housing and urban development process.

Figure 6.1 | UCPs as a filter between financial capital and the housing development process



Source: Author's analysis based on interviews and review of annual reports of publicly held companies listed in the Mexican Stock Exchange

6.1.1 Site selection and land acquisition

The first stage of the housing development process is land acquisition. This process has evolved over time. At first it was restricted by the dominance of ejido landownership; later, it responded to new interactions with new private actors and national and international financial capital and, more recently, it has reacted to a policy restricting the location of housing developments (i.e. the UCPs). So, what is the logic that has driven developers to favour peripheral locations ?

There are some structural factors within this housing model which have contributed to developers' preference for peripheral locations. Since the 1990s, the housing policies put in place have focused primarily on reducing the housing deficit while little effort has been made to regulate the quality and location of these privately developed housing estates. As a result, the housing model has favoured cheaply built housing developments in remote locations. In addition, following the logic of financialisation as an enabler of home ownership (Aalbers 2017), housing policies focused on securing state-subsidised mortgages for newly built housing and less so on the existing housing stock or on housing renovations, though this pattern has begun to shift over the last decade (CONAVI 2020). The combination of promoting homeownership via newly built housing and the lack of restrictions on location seem to have contributed to developers' preference for peripheral locations.

There are other factors embedded in the business model for these housing developments. Based on a series of questionnaires and interviews with developers, Nora Libertun de Duren (2018) has explored the reasons behind developers' preferences for peripheral locations for the development of social housing in Mexico. She points out that, contrary to what is commonly assumed, land price is not always the main factor driving the preference for relatively remote locations. In fact, the *size* of the plot and the *time* spent in dealing with development permits and authorisations play key roles in real estate developers' selection of a site (Libertun de Duren 2018). Since developers rely on a business model based on economies of scale, there is a preference for selecting large scale plots which can accommodate a large number of housing units (Eibenschutz and Goya 2009). In addition, since their profits per housing unit are low, they need to be efficient in their licensing and construction processes to be able to obtain returns.[54] In order to maintain their profits, developers require large plots of land, which are usually available at the urban periphery, at a considerable distance from infrastructure and

[54] Interview with Deputy Director of Innovation and Sustainability, ARA, Mexico City, 20 November 2018.

urban amenities. Although land prices do play a role in the business model, they only represent between 5% to 7% of the total housing development costs in peripheral locations (Libertun de Duren 2018, p. 416).

Developers assemble their land reserves through time, often five years ahead of starting a project. Land is purchased either using the developer's own capital or by forming trusts with investors to access global capital (i.e. Real Estate Investment Trusts). Strategies for choosing land vary depending on the size of the development firm. Large-scale firms often have better access to capital and often develop larger-scale projects, while medium-sized and small developers are less competitive and have less freedom in choosing the location of their developments, which are often of a smaller scale and less peripheral (Castro, Coulomb, León and Puebla 2006).

There is also a preference for buying greenfield land for development because buying land with urban services would dramatically increase the cost.[55] This greenfield land often has rural land tenure, including *ejido*[56] land. The agrarian reform that brought the privatisation of ejido land in 1992 opened up the possibility of *ejidatarios* to sell their land to private entities, something that until then could generally only be obtained either through state expropriation or by illegal sales (Jones 1991). The reform has been associated with the growth of housing developments in city peripheries (Boudreau *et al.* 2016; Salinas and Pardo 2018). In fact, many housing development companies have standardised mechanisms put in place by which they seek to purchase ejido land (Consorcio ARA 2016). There is a common assumption that developers have profited from the privatisation of the ejido, but this view has recently been contested by Varley and Salazar (2021) who provide empirical evidence that shows that this is not the case, at least regarding recent housing developments in the Metropolitan Area of Mexico City, the majority of which are located on land that was already private, with evidence of developers deliberately avoiding the ejido for a variety of reasons. The once cheap option of buying rural land seems to have become less attractive for developers, who in many cases choose to avoid going through the trouble of acquiring ejido land, which often belongs to a group of ejidatarios who would need to agree unanimously to sell the land.[57] In the cases where developers choose

[55] Interview with Deputy Director of Innovation and Sustainability, ARA, Mexico City, 20 November 2018.

[56] An ejido is a specific area of land intended for agricultural purposes and held collectively by one or more *ejidatarios* (Varley 1985a).

[57] Interview with Deputy Director of Innovation and Sustainability, ARA, Mexico City, 20 November 2018.

to buy ejido land, it seems only to be worthwhile when they are able build higher-income developments closer to the main built-up area of CDMX (Varley and Salazar 2021).

In addition to these factors, developers seek municipalities with which they are familiar and favour those known for speeding up administrative processes, i.e. issuing building permits and land-use changes (Libertun de Duren 2018). This is why developers tend to prefer buying land in municipalities where they have worked before, which facilitates the development process since they have already established business operations there.[58] Developers seem to be familiar with key actors in the municipality and with the requirements these officials will set them. This implies that each municipality is likely to work with the same set of developers over time. For instance, between 2000 and 2019, 64% of the housing units authorised in Tecámac were granted to SADASI, while GEO accounted for 65% of Zumpango's authorised housing units (author's calculations from *Gaceta de Gobierno del Estado de México*). In fact, during the same period three developers—GEO, SADASI and ARA—accounted for 54% of the housing units authorised in municipalities of the State of Mexico belonging to the Metropolitan Area of Mexico City. By acquiring large plots and giving preference to municipalities where they have virtually no competitors, real estate developers gain more leverage which enables them to influence municipal decisions regarding land use changes (Libertun de Duren 2018).

6.1.1.1 UCPs redefined projects viability

Developers have enjoyed a broad degree of freedom in acquiring land and securing subsidies, originally with little regard for the suitability or otherwise of the location of their projects for their future residents. The introduction of the UCPs in 2013 meant, however, that restrictions were put in place regarding location. Conditioning the receipt of subsidies to certain pre-defined zones with higher availability of jobs and access to basic services, these restrictions had huge implications for developers' existing land reserves affecting more than their location. As a representative of ARA, one of the largest development companies, explained, it also affected the type of housing they could develop there:

> The UCPs have directly affected our housing strategies; we went from having land reserves to having nothing. […] The land that we had already planned for a particular housing segment turned out to be impossible to develop for that purpose. […] We had to reconsider what we were going to do there, because we no longer

[58] Interview with Deputy Director of Innovation and Sustainability, ARA, Mexico City, 20 November 2018.

> had access to the subsidy and the [poor] location often did not allow us to develop higher-income housing.[59]

These views were confirmed by the CEO of another large-scale housing development company, Casas Javer, who provided the following statement in a newspaper interview: 'when housing policies changed, most of the land owned by developers was devalued. We decided to sell [our land] and bear the losses' (*El Financiero*, 27 January 2019). These responses to the introduction of the UCPs may help explain the shift in the housing market favouring an increasingly larger share of mid- and high-income developments over low-income housing, as discussed in Chapter 5.

The introduction of the UCPs also meant developers had to contemplate a new strategy that favoured smaller size plots:

> We used to buy large plots to build developments in different stages. This has changed because now they are discouraging large developments of thousands of houses […]. We are now going for small *communities*, and not for such large developments; building such large developments takes a long time and it has become complicated.[60]

In addition, there was a change of strategy regarding the location of future land reserves as location within the UCPs became one of the criteria that made a given property attractive. The representative of another large development company confirmed this:

> I believe that in some respects the UCPs stopped urban expansion, by introducing new 'rules of the game' that required new developments to be located adjacent to cities. Much of the affordable or low-income housing was subsidised, so either you were within the UCPs, or you didn't sell subsidised housing. Those rules allowed us to look thoroughly at elements that a housing development needs. It was no longer enough to include shops and green spaces, but to ensure there were urban amenities and nearby job opportunities. It meant seeing it [the housing development] as a part of the city. […] I think there was a change in strategy […]. They [developers] realised that if a housing development is outside the UCPs and lacks services, they will need to provide them, and it is no longer viable.[61]

In other words, the financial viability of a project had been redefined based on the project's location in relation to the UCPs. It was no longer an option for developers to exchange location for other less costly properties of a development (i.e. energy efficient technologies inside the house) to gain the score required to access federal subsidies (see Chapter 4). This change of

[59] See previous footnote.

[60] Interview with Deputy Director of Innovation and Sustainability, ARA, Mexico City, 20 November 2018.

[61] Interview with Chief Financial Advisor, SADASI, Mexico City, 30 April 2019.

strategy was expected, given that the UCPs had an immediate impact on the source of finance. Developers often gain access to finance through bridging loans issued by commercial banks or federal financial institutions—like the Federal Mortgage Trust (SHF). These low-interest rate loans can be used to finance land purchases and the construction of new housing developments and are progressively repaid as housing units are sold. The low-income population can access these housing units by relying on a combination of mortgages and federal subsidies. In 2014, 53% of subsidies were granted in combination with a mortgage (CIDOC and SHF 2014). With the introduction of the UCPs, new restrictions were put in place on the location of housing eligible for federal subsidies. Although for federal institutions granting bridging loans it is not mandatory to use the UCPs, some federal financial institutions have adopted the UCPs voluntarily to ensure certain baseline quality standards (at least in regard to the project's location). For example, in 2017 SHF incorporated the project's location within the UCPs as a requirement for accessing bridging loans, as part of the Ecocasa programme. Ecocasa is a programme launched in 2013 focusing on promoting energy-efficient affordable housing that would help to meet the national climate change mitigation goals. Through this programme, SHF could secure continuous access to finance from international bodies (like KfW and the Inter-American Development Bank) who were eager to invest in climate change mitigation strategies (SHF 2013).

In addition to federal financial institutions, private financial institutions have regarded the UCPs as a tool to assess the financial viability of a project. Commercial banks began to look at the UCPs as a guarantee of a prospective project's financial viability. This was confirmed by several federal officials from CONAVI during the interviews.

> After the crisis of 2012–13, when large housing developers went bankrupt, the banks were worried because there was a lot of land left outside the UCPs […]. The banks lent [to developers] to purchase land, but that land ceased to have the potential for which it was purchased […]. The banks lacked expertise. They realised that their risk assessment teams were not technically prepared to include a spatial analysis of the location of housing projects in their viability studies. However, banks learn very quickly, so they stopped lending outright, and then they started making the loans conditional on location within the UCPs.[62]

The private banking sector saw in the UCPs a useful tool to assess the viability of a project for two main reasons. First, the UCPs were published online (unlike some local urban development

[62] Interview with former General Director (2016-2018), National Housing Commission, Mexico City, 29 May 2019.

plans), which makes the information in question easily accessible by the banks. Second, the UCPs included maps with clear spatial definitions for the areas where subsidies could be granted, an analytical component that the banks' risk assessment teams otherwise lacked. This redefinition of how land was valued had significant implications for the lending process for both the commercial banks and the public financial institutions. A former General Director of CONAVI acknowledged the UCPs' impact on the process of land acquisition:

> The entire land acquisition policy changed for all the banks: BBVA Bancomer, Banamex, Santander […]. Later, the bridge loans from SHF, and other development banks also made loans conditional on location within the UCPs.[63]

In this way, the UCPs acted as a filter to access financial capital in order to buy land and this is why developers were so keen to ensure that their land was indeed located within the UCPs. In addition, the UCPs also seem to have contributed to bringing the lending strategies of public and private institutions into line, as pointed out by a CONAVI official:

> So, the housing sector and the banks fell into line. Not because the banks wanted it, but because the UCPs are a guarantee for them. The banks want to know that the houses are going to be sold, and this only occurs if they comply with the CONAVI conditions [on housing development location].[64]

The importance of the UCPs was recognised by the former General Director of CONAVI, who was in charge of their conception and implementation.

> The UCPs became an element of financial policy […] The impact of the UCPs is so much larger than what I anticipated, which makes me think that we should have taken them more seriously—by updating them and using them to their full potential. For example, they could be used to meet the Sustainable Development Goals set up by the UN New Urban Agenda, or they could be used by other ministries investing in infrastructure and social amenities (e.g. Ministries of Health, Education and Social Development).[65]

The fact that the UCPs' potential to affect financial capital came as a surprise to the former director underlines the *ad hoc* way in which the UCPs were first designed. As discussed in Chapter 4, the UCPs were conceived as a 'contingency' policy that was never expected to survive the change in administration. The UCPs not only survived but became a prime

[63] Interview with former General Director (2016-2018), National Housing Commission, Mexico City, 29 May 2019.

[64] Interview with Director, Land, Infrastructure and Housing Sustainability Department, National Housing Commission, Mexico City, 6 September 2017.

[65] Interview with former General Director (2016-2018), National Housing Commission, Mexico City, 29 May 2019.

component of the new administration's housing and urban development strategy. Their rapid implementation implied a series of adjustments in the definition of the zones eligible for subsidies that made them vulnerable to further adjustments and modifications. According to the former director, however, this dynamism was one of the strongest characteristics of the policy.[66] He also recognised a missed opportunity in the UCPs to achieve their 'full potential' to help inter-ministerial coordination and even to align national housing and development policies with the UN Sustainable Development Goals (SDGs), which is evidence of his awareness of global development policy and its potential access to global finance.

6.1.2 Licensing and permits

After the land is purchased, the next step in the development process is to obtain the necessary development authorisations and building permits. This often involves a series of prerequisites, such as service feasibility studies and environmental and regional impact assessment reports (Salinas and Soto 2019). Since most developers buy greenfield land for the development of social housing, after the feasibility studies have been completed the following step is to request a change of land use—usually from agricultural to residential land. Some developers regarded this as the most difficult part of the development process, particularly where it coincides with a change of government in the municipality, as a representative from ARA confirmed:

> [land use changes] are the most complicated part of the development process, in addition to permits, licences and feasibility studies. This is because government terms are too short and because there is a huge amount of corruption—even if we have everything in order, if the person in charge doesn't want to grant it or would only grant it in exchange for a bribe that we are not willing to give, the project will simply come to a halt. [67]

6.1.2.1 Developers welcomed the certainty brought by the UCPs

The uncertainty of whether developers will have their land use changes authorised, or how much it will cost, may have been reduced to some extent with the introduction of the UCPs. Vinte's CEO considered that the UCPs have helped to reduce corruption at municipal level by establishing some clear 'limits' about where development can take place and he also saw potential for speeding up the approval of licences and permits in the UCPs.[68] He went so far as

[66] Interview with former General Director (2016-2018), National Housing Commission, Mexico City, 29 May 2019.

[67] Interview with Deputy Director of Innovation and Sustainability, ARA, Mexico City, 20 November 2018.

[68] Interview with CEO, Vinte, Mexico City, 22 November 2018.

to claim that the UCPs were the 'best tool that the government has created in terms of urban planning'. Similarly, ARA's representative was clear that the UCPs had helped to achieve ordered urban development:

> [The UCPs] did serve to order us, or at least that is how we feel internally [at ARA], even though it changed the way we operate […]. I definitely think it served as a way to order and control our operation.[69]

Developers welcomed the opportunities brought by the UCPs because they provided certainty about *who* would get access to subsidies and *where* these would be granted. Having their land located within the UCPs does not automatically mean that developers will be able to build housing developments there, since they still need to comply with local planning regulations (i.e. land uses assigned at the municipality). Knowing that they can apply for subsidies, however, puts developers in a better negotiating position while seeking land use changes from the local government. In this way, UCPs may have helped to provide developers with greater security that they will be able obtain a land use change or building permit. This could, however, also pose a risk of interference in local urban planning since it is the local and not the national government that determines permissible land uses in local urban development plans (see Chapter 7).

6.1.3 Infrastructure provision, construction and sales

Once all permissions are granted, the project can enter the construction phase. This includes infrastructure layout, housing construction and, in parallel, marketing and sales. Developers are required to ensure access to infrastructure and basic services for their developments, including water, sewage, electricity and street paving. For developments in peripheral areas this might imply building new infrastructure or extending provision to reach the existing network. The distance to existing infrastructure therefore plays a key role in overall development costs since price increases with distance to infrastructure, representing up to 30% of the costs of a housing development in the periphery (Libertun de Duren 2018).

After the basic infrastructure network and street layout is set out, the next stage is the construction of housing units. The duration of this stage depends on the size of the project (i.e. the number and type of housing units to be built). Because the developers' business model depends on the volume produced, they have become extremely efficient in speeding up the

[69] Interview with Deputy Director of Innovation and Sustainability, ARA, Mexico City, 20 November 2018.

construction process. For example, one social housing unit in a large-scale development can be completed in just 25 days; in contrast, a house built using conventional methods would take at least 50 days to complete (Casas Javer 2016).

This high-speed construction process is made possible by two conditions. First, technological advances in the building techniques and the inclusion of prefabricated components have led to a shift from conventional building methods to methods that can be considered novel in the Mexican context (Castro *et al.* 2006). Instead of concrete block buildings, these developments often have concrete walls poured into metal formwork (allowing for the walls to be cast at the same time as the floor, thus saving time) or include prefabricated elements (Casas Javer 2016; Consorcio ARA 2016). Second, the fact that almost every aspect of construction is happening onsite reflects benefits of the aforementioned economies of scale. Developments are usually completed in phases, which allows developers to finish and sell tiers of development before continuing with the next one within the same plot. This means, however, that much of the infrastructure may be incomplete by the time the houses are sold. Some types of social infrastructure, like schools or hospitals, could be completed when demand (in terms of number of residents) reaches a critical mass. In some cases, however, basic urban infrastructure like water, electricity or street paving could still be missing or restricted many years after the dwellings are occupied (Marosi 2017a).

As soon as construction begins, the developers can start to market their project (Salinas and Soto 2019). To be able to advertise housing that would be eligible for a federal mortgage or subsidies, developers need to register all the planned units in the National Housing Register (RUV), where they are required to keep track of the construction progress of each unit. RUV keeps track of the housing status, verifies it onsite and shares this information with federal housing institutions (e.g. INFONAVIT, SHF, CONAVI). Developers pay a fee per housing unit to register their project and to request onsite verifications and status updates. Some developers are reluctant to pay these fees but, since the implementation of the UCPs, it has become impossible for them to get around this requirement if they want access to the secure influx of potential new buyers attracted by subsidised housing.[70] After registering the development with the RUV, developers can advertise a development as eligible for a federally managed mortgage and, if the development is located within the UCPs, the buyer is also

[70] Interview with Deputy Director of Land, Infrastructure and Housing Sustainability Department, National Housing Commission, Mexico City, 24 August 2017.

eligible for subsidies (representing up to 20% of the final price of an affordable housing unit). A common practice, however, is for developers to increase the price per dwelling by the equivalent of the savings represented by the subsidy.[71] So, while the buyer thinks they have benefited from federal subsidies, in practice developers are the ones benefiting.

6.1.3.1 Developments 'waiting' for the UCPs to come

The influence of the UCPs in the phases of infrastructure, construction and marketing is not as evident as in other phases of the housing development process. In terms of infrastructure provision, the UCPs were meant to promote development in areas with existing basic services (i.e. Zones 1 and 2) so they could have helped developers avoid the additional costs of connecting to remote infrastructure. These costs, however, would have been balanced out by higher land costs as proximity to existing infrastructure increased (Libertun de Duren 2018). In addition, proximity to infrastructure may not necessarily translate into access to basic services. Being located next to a development with access to the main water network will not guarantee that there will be water running through the pipes—or at least not enough for the large number of incoming residents, as the most popular areas for development are also the ones with overloaded water networks (Castro *et al.* 2006).

Although the housing construction process does not seem to have been directly affected by the UCPs, the policy might had had an impact on the mix of housing segments and the development strategies chosen for each project. For example, if only a section of a development can be located within the UCP zones, developers could build subsidised housing in that section only, leaving the rest of the development for middle- or upper-income housing.[72] Other developers opt to develop the section that falls within the UCPs and then 'wait until the city grows and the UCPs are updated'.[73] In this process, developers acknowledge both the temporality of urbanisation processes and also the temporality by which the UCPs are updated in response to these processes.

As regards marketing and sales, RUV provided certainty for the federal housing institutions as they were able to keep real-time data of social housing supply—including different

[71] Interview with Deputy Director of Land, Infrastructure and Housing Sustainability Department, National Housing Commission, Mexico City, 24 August 2017.

[72] Interview with Deputy Director of Innovation and Sustainability, ARA, Mexico City, 20 November 2018.

[73] Interview with Chief Financial Advisor, SADASI, Mexico City, 30 April 2019.

construction stages—and, more importantly, of its precise location in relation to the UCPs. While the UCPs were initially introduced to direct subsidies from the National Housing Commission (CONAVI) to certain locations, other housing institutions have since adopted them. Besides the aforementioned example of SHF with the Ecocasa programme, there have also been efforts to make the UCPs a requirement for granting all federally managed mortgages, for example those from INFONAVIT and FOVISSTE, and not only those mortgages tied to subsidies (*El Economista*, 16 January 2018). Making all federal mortgages for social housing conditional on their location within the UCPs could dramatically amplify UCPs' ability to steer the pattern of urban development, but it would also imply a huge coordination effort across the different housing institutions, which often have different standards for the definition of housing quality. There has also been considerable critique about the methodology behind the definition of the UCP subsidy zones. Other agencies have questioned why CONAVI should oversee this tremendous task when other institutions have better technical skills and knowledge of territorial and urban development.[74]

Another important factor is the speed with which the housing development process is completed, as speed is key to guaranteeing returns for housing development companies. As discussed earlier, the shorter the time span between the influx of financial capital (by means of bridging loans for development) and housing commercialisation (by means of mortgages and subsidies for the buyers), the faster developers will be able to repay the loan and still make profits from the development (Figure 6.1). In this regard, the UCPs do not seem to have sped up the construction process or even sales. In fact, housing construction times increased from an average of eight to ten months from 2014 to 2019, respectively (CONAVI 2020). In addition, sales have remained slow, with an average time of five months between the moment a house is completed and the date the property title is issued (CIDOC and SHF 2019). This highlights the issue of the lack of balance between housing demand and supply. As long as there is still an oversupply of housing being built at great speed, there will not be enough mortgages to purchase it—or at least not at such a pace. For example, in 2018 in the State of Mexico, only half of the number of housing units that were built were actually sold (CIDOC and SHF 2019). The problem also seems to relate to the product being offered, given that

[74] Interview with former Deputy Director, CONAVI, Mexico City, 8 April 2019.

recently there has been increasing demand for buying resale housing over new housing (CIDOC and SHF 2019).

6.1.4 Handover to municipality

After all phases of a development are completed, it is handed over to the municipality, which then takes care of infrastructure maintenance and ensures the provision of basic services. Given that the handover is not always completed as planned, municipalities often have to invest their own resources in chasing up developers to finish their projects, in some cases long after they have been built and occupied. During my fieldwork in Zumpango, I joined municipal personnel during a site visit to one housing development to supervise the status of infrastructure provision. During these visits, municipal personnel usually review the state of the streets, amenities and street lighting. The development we visited was by GEO, one of the largest housing development companies, which filed for bankruptcy in 2018. As a result, the provision of infrastructure for development was never finished. GEO sold its development rights to a new company, which took on the responsibility of completing the required infrastructure provision. This was not the only municipality with these problems. The Deputy Director of Urban Planning for the municipality of Huehuetoca also disclosed the poor state in which several housing developments were handed over:

> If they [real estate developers] have not finished a housing development, and have not met their obligation to completing it, why do we [municipality] have to approve it [the handover of the development]? Or if the first phase of the development has not been sold and inhabited, why authorise another?[75]

In fact, it has been documented that deficiencies in the provision of basic services, in combination with long commuting times to employment areas, are the main causes of housing abandonment (Reyes 2020b). For example, Huehuetoca and Zumpango were the municipalities with the highest vacancy rate in the State of Mexico in 2010, with 45% and 40% of housing left vacant respectively (INEGI 2010b).

6.1.4.1 UCPs as a missed opportunity to coordinate development

The fact that the formal handover of housing developments continues to be a problem suggests that the UCPs have not improved this situation. There is no inherent reason to think that they

[75] Deputy Director of the Department of Urban Planning, Huehuetoca, State of Mexico, 23 November 2018.

would or should do so, but there seems to be a missed opportunity to steer development towards the areas that the municipality wants to develop due to their existing service network. As discussed in Chapter 4, the lack of involvement of local municipalities in the definition of the UCP subsidy zones means that these are not coordinated with local urban development plans. In fact, the UCPs could have made things worse. Since the UCPs were not designed as an urban planning instrument but could effectively influence where new development takes place, these developments may be at odds with the land uses approved in the local urban plans which, in theory, should be based on urban carrying capacity studies to ensure that the municipality is able to meet the demand (see Chapter 7).

As we have seen throughout this overview, the housing development process in Mexico is deeply intertwined with financial processes that facilitated a risk-free business model for real estate developers, where finance was made available to them at the beginning of a project but was also coordinated with the issuing of mortgages and subsidies to ensure there would be buyers. At some point, however, it became evident that some restrictions were needed to reduce the negative externalities the housing model had created (i.e. undersupplied infrastructure, housing abandonment, poor connectivity and access to employment sources). The introduction of the UCPs was key in steering this process from the source, effectively modifying where land was bought by linking it to financial mechanisms that were vital for developers to continue with their prevailing business model. At discussed in the next section, however, developers' business model was affected in ways that pushed some of them to diversify their market focus towards upper-income housing. The regional focus of each development firm—i.e. favouring certain states and municipalities over others—remained a key element, perhaps due to the lack of a national construction industry in Mexico. In fact, the UCPs may have helped emphasise established power relations by giving developers more power to negotiate access to land and changes in land use regulation in regions where they were already dominant.

6.2 The final game changer? The impact of UCPs on real estate housing developers

Based on this analysis of the housing development process, there is no doubt that the UCPs had an impact on the private development sector, particularly at two points where financial capital entered the process: during land acquisition and when mortgages and subsidies were granted to allow commercialisation. Regardless of the size of the development company or their financial profile, it is evident that the UCPs affected the predominant business model.

The uncertainty around what the UCPs would imply for the business model started when President Peña Nieto announced the new housing policy, as there were immediate repercussions for the stock market. The S&P/BMV Housing Index is a stock market index computed from the stock prices of top publicly held Mexican housing development companies. Representing the performance of the housing sector, the index allows companies speedy access to investment portfolios, making them keen to compete against each other to be included as part of the index (Solís and Muñoz 2017).[76] The index had already been experiencing a drop from its peak in 2011 of 600 points and by the time the UCP policy was announced in February 2013, the average stock price was 200 points, dropping to 90 points just two months later and oscillating around 50 points from August 2013 onwards (S&P Dow Jones Indices LLC, retrieved on 23 August 2021).

The UCPs cannot be blamed, however, as solely responsible for this collapse. The volume of housing units produced was already falling before the implementation of the UCPs. Table 6.1 shows the total number of housing units registered in RUV. In 2010, half a million housing units were registered, by 2013 this had decreased to 300,000 and, although the number fluctuated in the following years, in 2017 there were only 250,000 housing units registered in RUV (CONAVI 2020). Even without the implementation of the UCPs, this downhill trend may have been observed. The UCPs may however have sped up the decline and, more importantly, played a role in pushing developers to shift the type of housing produced (see Chapter 5). With more restrictions on the location of social housing for subsidy eligibility, many developers chose to diversify to reduce their dependency on federal subsidies. The share of social housing in the total number of housing units registered in RUV was 66% in 2010, but fell to 56% in 2017 (CONAVI 2020).

[76] In 2012, the S&P/BMV Housing Index included the firms: GEO, ARA, Homex, Urbi, SARE and Hogar. By 2013, GEO and URBI had been removed due to delays in reporting their sales, while Homex and SARE struggled to remain in the index. By 2020, only ARA, Homex, Urbi, Vinte, and CADU remained in the index.

Table 6.1 | Housing units registered in the National Housing Register (RUV)

Year	Housing units	% Social	% Middle-/high-income
2010	500,346	66.10%	33.90%
2011	414,216	66.82%	33.18%
2012	341,277	62.15%	37.85%
2013	305,616	62.64%	37.36%
2014	413,822	67.45%	32.55%
2015	351,199	61.66%	38.34%
2016	306,412	56.11%	43.89%
2017	250,136	56.30%	43.70%

Source: CONAVI 2020

While it was clear that cracks had appeared in the prevailing business model, not all developers reacted the same way to the 2013 publication of the UCPs. Reactions seem to have differed by the type and size of the company and by their market focus (see Table 6.2). By documenting the responses of three development firms to the implementation of the UCPs, I aim to demonstrate how different strategies entailed their commercial success or failure.

Table 6.2 | Housing sales by development company

	GEO			ARA			Vinte		
Year	**Units sold**	**% Social**	**% Middle-/high-income**	**Units sold**	**% social**	**% Middle-/high-income**	**Units sold**	**% Social**	**% Middle-/high-income**
2010	56,093	78.5%	20.4%	16,324	75.9%	24.1%	2,018	61.9%	38.1%
2013	65,400	80.0%	20.0%	10,862	68.2%	31.8%	3,165	51.8%	48.2%
2014	4,124	NA	NA	10,700	61.7%	38.3%	3,881	50.9%	49.1%
2015	1,736	94.5%	5.5%	11,700	60.7%	39.3%	4,265	52.6%	47.4%
2016	2,594	90.4%	9.6%	11,800	65.3%	34.7%	4,236	46.2%	53.7%
2017	2,217	NA	NA	11,200	59.8%	40.2%	4,441	32.4%	67.6%

Source: Author's analysis based on annual reports from the Mexican Stock Exchange

6.2.1 GEO: extensive land reserves make the ship sink faster

GEO was one of the first firms to benefit from the housing financial reforms that made social housing development a lucrative industry. From early on, the company invested resources in developing building technologies and innovative architectural design that would allow it to reduce costs and construct at an unprecedented fast pace (García Peralta and Hofer 2006; Inclán Valadez 2013). This made GEO the first Mexican construction company to go public on the Mexican Stock Exchange in 1994, giving the firm access to large amounts of capital but also

obliging it to maintaining a high volume of sales. By 2010, GEO had over 20,000 employees and was building 56,000 houses per year (Table 6.2).

GEO's fortunes, however, began to change in 2012 when the company was removed from the S&P/BMV Housing Index due to delays in the publication of their sales reports, leading to the company's cutting its workforce by half. Although at the time the UCP policy was announced in 2013 GEO still managed to sell over 65,000 units, by 2014 the company had started a restructuring process—including two years of insolvency and a takeover by a banking institution—that ended with being officially declared bankrupt in 2018 (Table 6.2). While there is no evidence that the UCPs were directly and exclusively responsible for the company's failure, the UCP policy certainly did not help it overcome its financial difficulties:

> The impact on the subsidy allocation resulting from the new land reserves classification criteria [i.e. UCPs], in addition to increased construction time involved in producing vertical housing [one of the requisites in the points-based system to access federal subsidies], added up to the company's high degree of financial liability and forced it to file for insolvency in April 2014 (Corporación GEO 2016, p. 34).

During their insolvency, GEO tried to pay off or restructure their debt by selling most of their land reserves—which amounted to almost 8,000 hectares in 2010—and unfinished housing developments to other development companies (Corporación GEO 2010).[77] GEO continued, however, to target primarily the lower-income population market segment, and so remained heavily dependent on subsidies. For example, in 2010, 79% of the units GEO sold were social housing, increasing to 90% in 2016. The number of units sold in 2016, however, represented only 5% of the total housing units sold in 2010 (Corporación GEO 2010, 2016).

Other firms like GEO—comparable in size, volume production and market focus—faced similar problems after the introduction of the UCPs. For example, in 2010 Homex had a similar focus on the lower-income market (89% of the total units sold were social housing) and held an even larger quantity of land reserves (8,230 hectares) than GEO. In 2013, Homex filed for insolvency and went through a financial restructuring process. International stockholders pulled out their investments as a result of inconsistencies in Homex's sales reports, which deliberately underreported their sales so they could keep securing access to loans (Marosi

[77] Interview with former Chief consultant, GEO, Mexico City, 23 May 2019.

2017c). Without the liquidity to develop its land reserves, in 2018 Homex managed to sell less than 4% of the number of housing units sold in 2010 (Desarrolladora Homex 2010, 2018).

The companies producing high volumes of subsidised housing seem, perhaps logically, to have been the most severely affected by the UCPs. The fact that they were publicly held and competing in the S&P/BMV Housing Index implied that they had to continue producing at high volumes to maintain their returns. It also meant that these firms needed to maintain large land reserves for future development. Betting primarily on a single market segment (i.e. social housing) proved to be self-defeating when access to subsidies was disrupted by the UCP policy (BBVA Research Mexico 2013; Solís and Muñoz 2017).

6.2.2 ARA: diversify to keep afloat

Not all publicly held firms reacted in the same way to the implementation of the UCPs. Another firm, ARA, with just over 1,100 employees in 2010, opted for a different strategy from GEO's while facing the introduction of the UCPs in 2013. In 2010, ARA held just under 4,000 hectares of land reserves (half the holdings of GEO or Homex) but was selling almost a third of the number of housing units sold by GEO (some 16,000 units in 2010). This means that the ratio of land reserves to volume produced was much more conservative and therefore less prone to risk. ARA's sales have remained stable at an average of 12,000 units per year between 2010 and 2017 (Table 6.2). Although ARA also focused predominantly on the social housing segment, representing 76% of their sales in 2010, this figure had decreased to 68% in 2013 and reached its lowest level, 60%, in 2017 (Consorcio ARA 2010b, 2016, 2017). Despite the firm's ability to adapt, the perception of the potential impact of the UCPs on ARA's business model was still present, as a representative of the firm acknowledged:

> It [the UCP policy] affected our sales because we could not be as efficient as we wanted to be […]. There was an impact on sales, particularly of low-income housing or subsidised housing. The amount of subsidised housing we produced was reduced from one year to the next […] [and] land is no longer being bought for social interest housing, or only a minimum amount is being acquired. Precisely because the land that is better located is sold at prices that make it impossible to develop social interest housing.[78]

In their 2013 sales report, however, ARA stated that most of their land reserves and housing developments were located within the UCPs:

[78] Interview with Deputy Director of Innovation and Sustainability, ARA, Mexico City, 20 November 2018.

> A very important advantage of the company is that more than 80% of our housing developments as well as our land reserves are contained within the UCPs and the remaining 20% is currently undergoing reclassification such that it too will be incorporated into the UCP subsidy zones (Consorcio ARA 2013).

This last quote also highlights the flexible character of the policy as it demonstrates, clearly and bluntly, that developers were able to negotiate the inclusion of their land reserves within the UCP subsidy zones.

Like ARA, many other developers sought to diversify their market segment to reduce dependency on subsidies, although most were unable to ditch social housing development altogether. In a newspaper interview, the CEO of another development company, Casas Javer (a firm comparable to ARA in terms of number of employees and land reserves), stated this:

> We have tried to focus on middle-income housing, but it is impossible not to continue with social housing […]. We also have some developments focused on higher segments. […]. What we want is to be thoroughly diversified (*El Financiero*, 27 January 2019).

Casas Javer, however, also happened to have 70% of their land reserves directly within the UCPs and 29% classified as 'exempt' (Casas Javer 2016). This meant that they could justify access to subsidies by following the exemption rules, by which developers could prove the proximity of their projects to employment and existing housing density that were not necessarily recognised in the UCP subsidy zones, as discussed in Chapter 4. Thus, even publicly held firms like ARA and Casas Javer were able to shift towards other markets. This was only possible, however, because they had smaller land reserves that were 'better' located in terms of the UCPs. Ironically, having land located within the UCPs meant that it was closer to existing urban areas and, unlike land beyond the UCPs, would also be attractive to the middle- or higher-income market.

6.2.3 VINTE: further diversification and access to green bonds

In addition to diversifying their target market, other publicly held firms have sought alternative sources of financing. Vinte entered the Mexican stock exchange market in 2016 and has since replaced companies like GEO in the S&P/BMV Housing Index. In 2010, Vinte held over 3,000 hectares of land reserves but it has progressively moved towards smaller size developments and by 2019 its land stock was reduced to 620 hectares (Inmobiliaria Vinte 2010, 2019). Sales have however remained stable, at an average of 4,000 units sold per year between 2010 and 2017 (Table 6.2). Like ARA, Vinte has progressively diversified, leading to the contribution

of social housing to total output falling from 62% in 2010 to just 32% in 2017. This proved to be a beneficial move: the firm has tripled in size between 2010 and 2019, from 309 to 949 employees. In addition, Vinte's business model has been characterised by focusing on innovative sustainability measures that has allowed them to gain access to international 'green bonds', making 63% of the company's debt 'sustainable' (Inmobiliaria Vinte 2019, p. 58). Other firms have been reluctant to invest in these technologies, and instead they simply comply with the minimum requirements to access subsidies (e.g. energy efficient lighting, solar water heaters and water-saving devices). Although Vinte's business model still depends on federal resources attached to the mortgages, it is less dependent on direct subsidies, which made the company resilient to the implementation of the UCPs.[79]

It is clear that the diversification of the market has increased the resiliency of publicly held firms against the implementation of the UCPs but, in the case of Vinte, investment in innovative 'green' products has also proven beneficial as it allowed the firm to secure a niche of international investors interested in backing sustainable projects.

6.2.4 Factors determining success/failure

As we have seen from this analysis, there are some factors which have determined the developers' success or failure in adapting to the UCP policy. The size of the firm, the size of their land reserves and the volume of houses produced all played a role. The decisive factor, however, seemed to be the degree of dependence on subsidised housing and how far firms opted to either stick to that market segment or diversify. Those who diversified succeeded, while those who continued to depend on the subsidies failed. This diversification of the market was welcomed by federal government officials, as this statement from the former General Director of CONAVI shows:

> I think the UCPs did have an impact on the market, but this was divided. Those [developers] who had a high dependency on subsidies—because they only produced subsidised housing—had to diversify because of the UCPs' implementation. This has been good for them not only because they reduced their dependence on the subsidies, but because of the financial health of their companies.[80]

[79] Interview with CEO, Vinte, Mexico City, 22 November 2018.

[80] Interview with former General Director (2016-2018), National Housing Commission, Mexico City, 29 May 2019.

The question remains: if all developers diversify, and there is no incentive or ability to continue producing social housing developments, then what is the alternative to meet the housing demand from the low-income population? This would then be a perverse effect of the UCPs, which were meant to improve access to services and employment for social housing residents but might rather have undermined the production of social housing. A developer confirmed this conclusion by stating that 'subsidised housing is no longer being built because the land prices became very expensive'. 'The UCPs were a good idea,' she went on to say, 'but by themselves, they do not hold up'.[81]

6.3 Conclusion

In this chapter I have examined the impacts of the UCP policy on housing developers and documented the companies' responses to its implementation. Outlining the process of social housing development, I identified two key points at which access to finance was key to the developers' business model: (1) land acquisition and (2) marketing and sales. The UCPs acted precisely at these points. By making subsidies conditional on a project's location, the policy effectively redefined the project's viability. In this sense, the policy exceeded its expected remit, as it was voluntarily adopted by both federal financial institutions and commercial banks as a way to determine the potential value of a given area of land. This shows how open these institutions were to regulations that would provide some clarity for their future investments.

The different ways in which the introduction of the UCPs affected the strategies of housing developers depended on their size, type (public or privately held) and the amount of land reserves they held. In an already struggling industry, the UCPs proved to be the 'straw that broke the camel's back' for some of the largest development companies. The main difference between success or failure in adapting to the policy, however, seemed to be related to developers' chosen market strategies. Since only those firms that diversified seem to have remained successful, the risk of reducing the production of social housing is that this could end up pushing lower-income families into other housing solutions, such as continued informal settlements.

Among private developers there was also a general desire for a regulatory framework that could grant greater certainty to the housing development process. In that sense, the UCPs facilitated

[81] Interview with Deputy Director of Innovation and Sustainability, ARA, Mexico City, 20 November 2018.

the process, providing clarity about *what* could be built and *where* it could be built. The fact that, after initial resistance to the policy, developers welcomed the UCPs implies a recognition that the prevailing housing model needed some limits. After all, the model was already in trouble, as demonstrated by widespread housing abandonment and the financial difficulties faced by the largest developers. The UCPs provided developers with these limits, at the level of principle, but in practice they also allowed developers to help set the boundaries as best suited them (as discussed in Chapter 4). This implies that the policy may be seen as a way to cover up the failure of the model, and that it was expected for the policy to help regain the public's (and international funding bodies') trust in the housing production model, when in practice developers had little real incentive or, in some cases, ability (e.g. amid increasingly high land prices within the UCPs) to dramatically change it.

Whether the UCPs provided clarity or were simply a façade to keep the model rolling, it is relevant to conceptualise the notion of the UCPs as 'peripheral planning'—as introduced in Chapter 2 based in Caldeira's concept of 'peripheral urbanization' (2017, p. 4). This review of the impact of the UCPs on real estate developers has shown a change in the types of interactions between different actors which had an impact on new modes of politics in the process of housing financing and development.

The UCPs added a layer of regulation to the housing development process. Before their implementation, developers dealt with planning regulations on the one hand (e.g. land use, planning and construction regulations) and with meeting the criteria for accessing finance on the other (whether from federal or private sources). The introduction of the UCPs, however, created a transversal link between these processes, effectively connecting planning with access to finance. In this process, CONAVI's role became prominent, since it was the institution in charge of defining the rules affecting access to finance. This led to a series of new interactions between CONAVI and different institutions (e.g. commercial banks and SHF) that voluntarily adopted the UCPs as a tool to secure their projects' viability for their investments. In addition, this new set of interactions opened the possibility of new modes of politics as the UCPs were used to provide evidence that the federal government was doing everything in its power to change the pattern of urbanisation in search of a more sustainable one. This could then be used to improve general public opinion about the product in question, but also to secure access to a steady influx of international capital focused on promoting sustainable development.

One key actor consistently missing from these interactions was the local government, which was left out of the discussions during the definition of and subsequent updates to the UCPs. One might imagine that the desire for regulation and clarity regarding future urban development expressed by private developers would also be welcomed by local governments. As the following chapter will discuss, there are in fact some instances where municipal governments have welcomed the introduction of the UCPs as a measure that can support and help innovate local urban planning practices.

7 Urban planning and the UCPs

Attempts to control urban development in Latin America have employed a range of different strategies. Most of these strategies have been based on European urban planning practices and they have often faced challenges in relation to implementation. While the lack of sufficient technical or financial skills is often identified as the main barrier to policy implementation (Gilbert and De Jong 2015), others have argued that the existing 'political bargaining environment' has also played a key role in successful implementation, particularly in the global south (Goodfellow 2013, p. 91). Policy implementation should therefore be analysed against a broader political and institutional context, alongside simply looking at local competency in urban planning.

In the case of Mexico, the Urban Containment Perimeters (UCPs) constitute an innovative attempt to control the pattern of urban development using financial incentives. Seeing the UCPs as an urban planning tool opens the possibility of understanding the policy's potential beyond being an instrument used to reproduce the financialised housing model (see Chapter 2). It is important to remember, however, that the UCPs were never envisioned as a planning instrument. They are quite different from urban development plans. A federal official who witnessed the emergence of the policy described it as follows:

> The UCPs are a tool that is modified year by year, like the subsidies, which are granted year by year. Urban development plans are long-term strategies, so you cannot compare the two. Our aim was that the UCPs would provide an incentive to control growth, to be replaced eventually by the local plans.[82]

Although the UCPs were not designed to work as planning instruments, they do 'offer a diagnostic of the city, and many urban development plans currently incorporate the UCPs as a layer of analysis'.[83] In fact, as we will see in the following sections, one municipality in the State of Mexico has actively incorporated the UCPs into its planning process.

In order to evaluate the overall influence of the UCPs on urban planning practices, I look in detail at Tecámac, one peripheral municipality of the Metropolitan Area of Mexico City where the UCPs have served as supplementary planning instrument to the otherwise outdated urban

[82] Interview with Director of Land, Infrastructure and Housing Sustainability, CONAVI, Mexico City, 6 September 2017.

[83] See previous footnote.

development plans. I compare Tecámac with two other neighbouring municipalities that exhibited a significant lack of awareness regarding the existence of UCPs and the national housing policy strategy. I assume that municipal competency in urban planning has something to do with the ability of municipalities to innovate in their planning processes, for example by incorporating the UCPs as a complementary planning tool. To understand why one municipality seems to be more successful in updating their planning instruments while actively incorporating the UCPs, I compare the financial, technical, political and institutional skills of Tecámac against the municipalities of Huehuetoca and Zumpango.

This chapter draws on data collected through interviews with public officials related to urban planning—both at federal and municipal level—and on the analysis of planning, financial and legislative documents. A description of the planning process in Mexico reveals how the governance structure has been subject to an apparently incomplete decentralisation process. In addition, results from the municipal competency analysis show that a lack of financial and technical skills may not be the only reason why some municipalities are unable to adopt the UCPs as a planning tool. The institutional architecture, political alignment and the presence of key proactive players contributes in high degree to the creation and implementation of innovative planning instruments and strategies, such as the UCPs.

7.1 *Los municipios tienen voz, pero no voto* [Municipalities have a voice, but not a say]

As discussed in Chapter 2, the institutional decentralisation process that took place during the 1990s in the form of the reforms of the Constitutional Article 115 and the update of the General Human Settlements Law (1993) meant that municipalities were progressively granted the ability (and the obligation) to define and implement municipal urban development plans. Yet planning processes are not so decentralised, as State governments often play a significant role in deciding how plans are created and updated because municipal plans are supposed to align with State and federal planning instruments. In addition, although municipal governments are in charge of defining their urban development plans, in the State of Mexico the authorisation of conjuntos urbanos—which represent a large part of peripheral development in Mexican cities—is granted at the State level.[84] This means that although decentralisation policies have

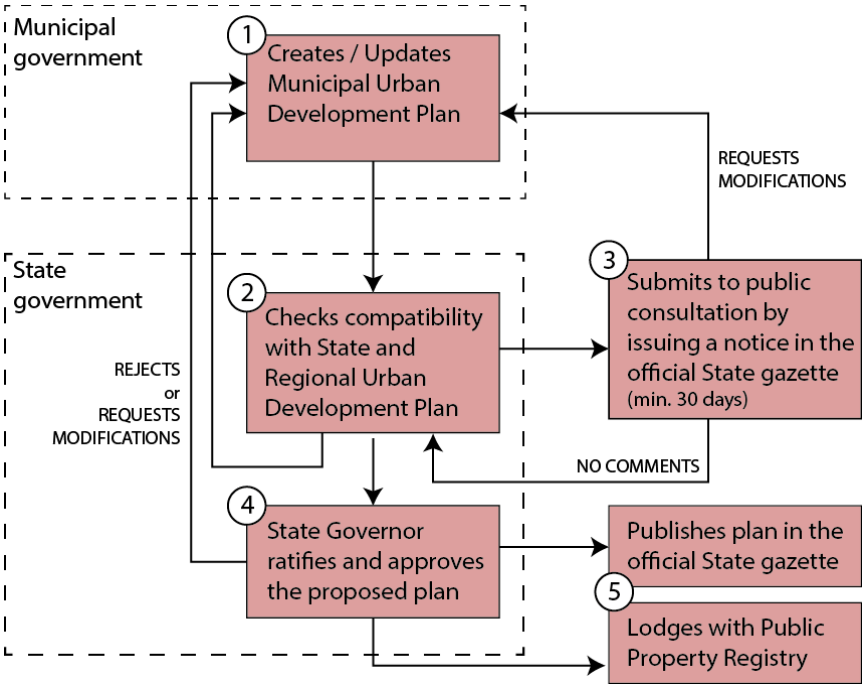
[84] See Chapter 6 for a definition of conjuntos urbanos.

been put in place, urban planning is still far from fully decentralised. As a municipal officer of Zumpango put it, 'municipalities have a voice, but not a say'.[85]

This subordinate role of the municipality is evident in the process of creating or updating a municipal urban development plan (Figure 7.1). Once a municipality has drafted a new or updated version of the plan, the proposed plan is sent to the State Ministry of Urban Development and Housing, where its alignment with State and Regional Urban Development Plans is checked. Once verified, and if no modifications are required, it is then submitted to public consultation. A notice of the consultation in the official State gazette allows interested parties at least one month to make comments. Although this stage informs the general public about the plan and could potentially promote public participation, the outdated and non-representative participation mechanisms mean that modifications are rarely requested after the public consultation period (Ziccardi 2004). After any potential comments are considered and incorporated into the plan, the municipal plan is then formally presented to the State Governor and, once approved, the plan is officially published in the State gazette and lodged with the Public Property Registry (Gobierno del Estado de México 2001). In municipalities of the State of Mexico, this process has been observed to take around eleven months, including five months for the creation of the municipal plan, and another six months for its validation, consultation and publication (Alcudia 2017).

[85] Interview with municipal personnel, Urban Development Branch, Zumpango, State of Mexico, 27 November 2018.

Figure 7.1 | Process for the creation/update of Municipal Urban Development Plans, State of Mexico



Source: Author, based on field interviews and on Gobierno del Estado de México (2001)

This iterative process is therefore time consuming and it also implies that while the municipality has the right and the responsibility to decide the content of the plan, this has to align with State instruments. Ultimately, the State Governor has the last word on whether the plan is approved or not. Even though municipalities are required to update their plan every five years, the length and complexity of the process means that they rarely do so. As an official in Tecámac noted:

> The plan is valid until the new one is published. This means that the current one is eleven years old and has remained unchanged through four different [municipal] administrations. The law tells us that plans must be updated every five years, but there is not much interest in updating them.[86]

The three-year term of municipal government administrations rarely offers enough time to complete and update a plan. Since there is no sanction for failing to comply with this requirement, there is simply not enough incentive for municipalities to invest their technical and financial resources into updating their plans, and when the plans *are* updated, the work is often outsourced to private consultants. The cost of creating or updating a municipal urban development plan is between 1 and 1.5 million pesos (around £40,000 GBP) for a small municipality (based on SEDATU 2019). Even when plans are updated in accordance with

[86] Technical secretary, Tecámac, State of Mexico, 5 November 2018.

official requirements, municipalities generally only update them to reflect when they are out of line with existing urban conditions. For example, when asked about the status of Huehuetoca's municipal urban development plan, the Deputy Director of Urban Development said this:

> [W]e should have updated the current Urban Development Plan, to incorporate the recent urban growth we have seen in the municipality, which has been quite disordered […]. But there has not been an update, so we are still working with the existing plan [dating from 2007]. It is obsolete but still valid for us.[87]

He seems to acknowledge that when plans are updated, it is only to incorporate what has already happened on the ground. There is no future vision, no *plan* that could help municipalities such as Huehuetoca tackle the 'disordered' urban growth mentioned by this interviewee.

The plans usually have two components: an assessment of current conditions and a spatial strategy for future development. Most of the plans include three basic zoning categories: urban land, land suitable for development and land unsuitable for development. While the urban land uses reflect existing urban conditions, land suitable for development is often a default category i.e. one that includes all undeveloped land except that specifically designated as unsuitable for development. Municipalities therefore try to classify as much land as possible as suitable for development (Isunza and Méndez 2011).

The degree of urbanisation varies significantly between municipalities in the State of Mexico, as does municipal income. These variations mean that the amount of effort implied in producing a plan will vary, as will the quality of the municipal urban development plans. There has, however, been a recent effort to standardise the development of these plans. At the national level, in 2017 the Ministry of Agrarian, Territorial and Urban Development (SEDATU) published an advisory guide for the development of new municipal plans, including a strong technical and methodological outline to be followed (SEDATU *et al.* 2017). A more recent version of the guide, published in 2020, refocuses the emphasis on the city as a human right for all citizens and proposes simplified methodologies to be achieved at faster development times (SEDATU 2020a). It is noticeable that neither of these guides makes any mention of the UCP policy, although both make recommendations strongly focused on a compact city strategy. Since their publication, there has only been a limited adoption of these methodologies:

[87] Interview with Deputy Director of Urban Development, Huehuetoca, State of Mexico, 12 November 2018.

across the country between 2017 and 2020, only 18 new planning instruments were published based on these guides (SEDATU 2020a).

In the State of Mexico, there has been a recent effort to publish and update the municipal urban development plans. Of the 59 municipalities of the State of Mexico that form part of the Metropolitan Area of Mexico City, in 2017 only six municipalities lacked urban development plans, but only nineteen had updated their plan since 2003 (SEDUYM 2019). This means that although most municipalities have a plan, the majority are using outdated and possibly inadequate planning instruments that fail to reflect the current built-up area in the municipality in question, let alone provide a future development strategy.

Urban development plans are not generally held in high regard. A federal government official, for example, considered that 'in Mexico, local development plans do not work. They are not respected; they are not adequate'.[88] And for private developers,

> [t]he plans do exist, but we have seen that they can be changed when there is enough motivation. It might be the best urban development plan ever, but that does not mean that it will always be adhered to and respected.[89]

Simply gaining access to the plans can be a difficult task. Even though development plans are by law supposed to be publicly accessible, in many cases they are only available in a physical format (printed) and rarely published online. Even personnel from the National Housing Commission (CONAVI) struggled to get their hands on all the existing municipal plans.[90] This lack of access to the plans may in part explain the common lack of coordination between adjacent municipalities, which means that their plans may contradict each other's strategies, as a planning official in Huehuetoca pointed out:

> Sometimes the plans do not match. The boundaries between Zumpango and Huehuetoca should match, but they often don't. We should have a coordinated plan […] where the mayors could participate and discuss priorities across different municipalities. We always invest within the municipality without considering what happens beyond it. We should have an overarching vision, for example, when

[88] Interview with former Director of Land, Infrastructure and Housing Sustainability, CONAVI, Mexico City, 23 November 2018.

[89] Interview with Deputy Director of Innovation and Sustainability, ARA, Mexico City, 20 November 2018.

[90] Interview with Director of Land, Infrastructure and Housing Sustainability, CONAVI, Mexico City, 19 November 2018.

> developing new roads, where different municipal and State governments could intervene.[91]

Besides the effort to publish and update the municipal urban development plans, the State of Mexico has also been a precursor in terms of legislative innovation. Not only was the State of Mexico one of the first to recognise conjuntos urbanos as a unique legal concept (Godinez 2009), but the State also produced legislation that responded to their specific characteristics. The State of Mexico has an Administrative Code (superseding the 1993 State Human Settlements Law) that is generally stricter than urban planning regulation in other states. In volume V, the code provides definitions, obligations and requirements specifically designed for conjuntos urbanos (Gobierno del Estado de México 2001). The code was described by the Director of the National Chamber of Housing and Development of Mexico City as the best possible guide for the development of conjuntos urbanos, with very strict requirements for the provision for infrastructure and amenities.[92] A local developer pointed out how the State of Mexico has stricter requirements than the Mexico City government (CDMX):

> The State of Mexico is the most regulated in terms of housing, the one that requires most infrastructure to be provided [by the developer]. Here we have a 200-unit housing development and we have to build a day-care centre. In DF [CDMX] you can build high-rise apartment blocks with 200 apartments, and they do not do even ask you to provide roads […]. In terms of regulation, building requirements in the DF are less strict than in the State of Mexico.[93]

Even though there is a perception among developers that the requirements for new housing developments in the State of Mexico are strict and demanding, until recently they were still able to develop wherever they could find affordable land (i.e. in the urban periphery), and they became extremely skilled in complying with the requirements while maintaining high profits.

Despite the State of Mexico's effort to create and update urban planning instruments and housing development regulation, there is still a very strong top-down approach in the process of authorisation of new conjuntos urbanos. Although conjuntos need to be endorsed by the municipality, the pressure to develop more conjuntos is evident both from municipalities that

[91] Interview with Deputy Director of Urban Development, Huehuetoca, State of Mexico, 12 November 2018.

[92] Interview with Director of the Chamber of Housing and Development (CANADEVI Valle de México), Mexico City, 7 June 2019.

[93] Interview with local housing developer, Tecámac, State of Mexico, 5 November 2018.

see them as an additional source of income (see below) and from the State government, which is often subject to political pressure to keep large development firms happy.

The main issue with newly authorised conjuntos is the way their development affects the ability of the municipalities to implement their urban planning strategies. Developers planning large conjuntos usually request municipal authorisations in different phases: first, an outline authorisation for the entire area in question and second, additional authorisations to build part of the intended housing stock. Subsequent authorisations cover the remaining houses. This allows developers to keep up a fast pace of development—a key factor in their business model—while obtaining subsequent building permits. In order to obtain authorisation for an additional phase, they must have completed the preceding one—including the provision of services stipulated in the State regulation (volume V of the Administrative Code)—and a services feasibility assessment must be provided (confirming water network connectivity). However, as noted by the Deputy Director of Urban Development in Huehuetoca, this does not always happen:

> Developers are supposed to meet certain obligations […] [and] it is the responsibility of both the State government and the municipality to ensure adequate urban planning. The conjuntos have arrived in a disordered way; there have been water shortages and, particularly, a rise in car traffic due to the limited access roads we have, which are very expensive to build […]. Why does the State government authorise but not regulate [these developments]? It's the State government's responsibility as well as the municipality's. If they [private developers] have not finished a housing development, and the obligations that go with completing it, why do we [the municipality] have to endorse them? Or if the first phase of the development has not been sold and inhabited, why should we endorse another one?[94]

This means that municipalities often act more as managers of what the State has authorised, rather than actually defining the future development of their territory (Duhau 1988). Referring to the peripheral municipalities of the Metropolitan Area of Mexico City, Emilio Duhau (1988, p. 116) describes them as 'having a fundamentally passive character, acting as receivers of the metropolitan [urban] phenomenon'.

Municipalities are responsible for providing basic services and controlling land use changes. Housing developments endorsed by the municipality should therefore have the complete range of services required before any further phase of the development can be authorised by the State.

[94] Interview with Deputy Director of Urban Development, Huehuetoca, State of Mexico, 12 November 2018.

Once conjuntos urbanos have been authorised by the State, however, developers often fail to comply with basic urban services requirements. The municipality is then in charge of chasing up these obligations and supervising the work's completion. In addition, even when the services have been fully provided, the municipality still needs to ensure an adequate supply of the service in question and maintain the infrastructure. Roads, for instance, require frequent and expensive maintenance.

7.1.1 UCPs' potential to assist local urban planning

Against the Mexican municipal governance structure, where the institutional architecture around urban planning is still very much centralised while the municipalities are undergoing different degrees of decentralisation processes, we witness what I call an incomplete or 'uneven'[95] form of decentralisation. This has led to municipalities being unable or uninterested in creating or updating their planning instruments and, since there is no real repercussion for failing to produce them, this means they are simply left with outdated planning instruments.

But what if municipalities had a way to make the process more efficient, reducing the time and resources needed to produce and update their plans? I argue that the UCPs may facilitate the creation of municipal development plans, particularly at the early stage of assessing the current urban conditions, which serve as the basis from which municipalities must define their future urban strategies. That is not to say that the UCPs should replace urban plans, or that they should be used as they are. There are many flaws in their definition, and they would need to be adapted by each municipality to reflect their urban conditions and priorities. What follows is a series of potential benefits from using the UCPs in planning.

One of the main assets that the UCPs provide to local planning has to do with information and digital technology, particularly geospatial and statistical data. Many municipalities struggle with the technical skills to produce plans using digital cartography. Two thirds of the municipalities across the country use Computer-Aided Design (CAD) software to create their urban development plans, as this software is commonly used by the architects and engineers who often comprise the technical personnel of urban planning departments (INEGI 2019a). By contrast, only 0.7% of the municipalities throughout the country have produced plans using Geographic Information Systems (GIS) (*ibid*). The nature of CAD and GIS means that urban

[95] The term uneven is adapted from Julie Anne Boudreau et al.'s term of 'uneven state formalisation' (Boudreau *et al.* 2016)

plans created with one or the other are substantially different in terms of the level of detail and amount of data embedded in the plan. CAD is typically used as a design tool to model new objects and uses a limited number of databases which are commonly created by a draftsman (Newell and Sancha 1990, p. 131). GIS, on the other hand, is commonly used to represent the world as it exists and it can be composed from a series of databases, e.g. population, housing, environmental, land use data, which are usually created (and regularly updated) by governmental agencies (*ibid*). Although there is a trend towards incorporating GIS in urban planning, the long learning curve and high costs of GIS software makes it difficult for municipalities to translate their plans from CAD to GIS, particularly in contexts like Mexico. The UCPs, by contrast, are created using GIS and published in .kmz and .shp formats, so they can be accessed by both unskilled and skilled personnel (using Google Earth or GIS software, respectively) (see Chapter 4). More importantly, having a recent snapshot of urban development offered by using GIS and a wider array of databases, updated regularly and automatically by the federal government, can be an important starting point for defining urban development plans that could lead to more frequent and timely updates to the plans.

In addition, because the UCPs make no distinction between different municipal or state boundaries, and instead define urbanisation as urban agglomeration, they provide a metropolitan view of urbanisation. If all the municipalities of a particular metropolitan area adopted the UCPs in their plans, this could help standardise their planning instruments and coordinate their future strategies with neighbouring municipalities. More importantly, the UCPs could help align strategies between municipalities and the State and metropolitan governments. In addition, since the UCPs are defined at the federal level, they already have a unified strategy of urban development that seeks to contain urban expansion by bringing housing closer to jobs and services.

The UCPs could also help with the implementation of urban development plans. As we have seen, plans are rarely held in high regard. This is not only because they are commonly outdated, but also because they rarely fully implemented, particularly when there are no enforcement strategies or capacity or motivation to ensure the plan is respected. Seeking permission for a change of land use stipulated in the plan is a common procedure, particularly where changes from rural to residential land are concerned. Local officials acknowledged that it is rather easy

to obtain a permit for land use change.[96] Within this context, the UCPs may offer a way to facilitate plan implementation. By recognising the financialised housing model as one of the main drivers of peripheral urbanisation and using incentives to direct this development to the UCP zones, the policy is effectively steering urban development (see Chapter 5). In that sense, as a federal official from CONAVI notes, 'the UCPs are a public policy that has achieved what they [the Municipal Urban Development Plans] have not achieved'.[97] But as we have seen, the UCPs have plenty of room for improvement. If the UCP zones were coordinated with the local planning instruments, we could have a potentially stronger instrument. To test these hypotheses about the potential of using the UCPs as a planning tool, the next section introduces the case of Tecámac, a municipality that has actively adopted the UCPs in developing a proposal for the municipal urban development plan of 2018.

7.2 Planning with the UCPs in Tecámac

Tecámac is one of the municipalities in the northern region of the Metropolitan Area of Mexico City. It has witnessed a dramatic expansion in massive conjuntos urbanos since the early 2000s, with over 150,000 social housing units authorised between 2000 and 2019 (*Gaceta de Gobierno del Estado de México* 2019). Tecámac was once a peripheral municipality but, as the metropolitan area has expanded, it is now surrounded by urbanised municipalities. Reflecting this urbanisation trend, the social housing market has started to shift from low-income developments towards more middle-income housing developments, as a local housing developer points out:

> This municipality is shifting their development focus from social interest to middle-income housing […]. Different areas are established according to the housing value and Tecámac is an area where we have increasingly higher prices in housing [in comparison to neighbouring municipalities]. Tecámac is well-connected and that increases its surplus value.[98]

Tecámac is also a remarkable case in terms of urban planning, as there was a recent attempt to update the municipality's urban development plan using the UCPs as an additional source of information. A team of highly engaged municipal staff team was involved in understanding the

[96] Interview with Chief of Urban Planning and Information Department, Tecámac, State of Mexico, 5 November 2018.

[97] Interview with Director of Land, Infrastructure and Housing Sustainability, CONAVI, Mexico City, 6 September 2017.

[98] Interview with local housing developer, Tecámac, State of Mexico, 5 November 2018.

needs of the municipality, while their awareness of federal and international planning instruments improved the quality of the planning process.

By analysing the conditions in Tecámac, my intention is to shed some light onto why and how this municipality has succeeded in adopting the UCPs as an analytical tool that aided the process of updating the Municipal Urban Development Plan.

7.2.1 Tecámac's proposal for the Municipal Urban Development Plan 2018

Figure 7.2 | Tecámac city hall

Source: Author, 2018

In 2018, Tecámac's municipal government (2015–2018) developed a proposal to update the Municipal Urban Development Plan of 2007, a plan which had a strong focus on regional development, enhanced by the Bicentennial Cities regional strategy.[99] The update proposal for the plan, however, was not approved before the change of municipal government in 2019. This confirms what I was told by interviewees about the three-year term of municipal government administrations being one of the main barriers to updating development plans.

As it happened, in October 2018 a public consultation for the development of a New International Airport for Mexico City was launched by newly elected President Andres Manuel López Obrador (commonly known and henceforth referred to as AMLO). It proposed to switch

[99] The Bicentennial Cities was a strategy launched by the State of Mexico government to promote regional development based on strategic private investment in six cities including: Almoloya de Juarez, Atlacomulco, Jilotepec, Huehuetoca, Zumpango and Tecámac.

the site from one where construction was already underway in Texcoco to a former military air base in Zumpango (a neighbouring municipality of Tecámac). This naturally had major implications for urban development in the region and, subsequently, the federal government ordered the creation of a new integrated Regional Urban Development Plan for the eight municipalities surrounding the new airport (SEDATU 2020b). This large infrastructure project, and the political and economic implications at both national and international scale, was one reason that the 2018 version of Tecámac's urban development plan was never approved.

It is nonetheless worth looking closer at the proposed update as it incorporated some key aspects of the UCP methodology, e.g. regarding an accurate cartographic representation of the degree of urbanisation across the municipal territory (i.e. primary zoning). With considerable pride, the mayor's technical secretary mentioned the following:

> We are trying to borrow from the Urban Containment Perimeter approach, which in general terms is not a bad approach. We are trying to adjust this approach to the conditions of the municipality.[100]

A member of the municipality's Urban Planning and Information Department explained the update process in detail. The technical team started by overlaying the 2018 version of the UCPs on the urban development plan of 2007, which contained three main zoning categories: currently developed land (the existing built-up area), land for future development (brownfield or greenfield) and land that cannot be developed (including natural reserves, water bodies and other incompatible uses). As discussed earlier in this thesis, the UCPs were designed as an instrument to help implement a housing policy (i.e. federal subsidies for affordable housing). The maps encapsulating the UCP policy, however, are not intended to supplant local urban planning. In fact, to be eligible for subsidies, any authorised development should also comply with local land uses and occupation intensities as determined by the municipal planning instruments. The UCPs include three different spatial classifications: Zone 1 (urban areas in proximity to jobs), Zone 2 (semi-urban areas with up to 75% access to basic services, i.e. water and sewage coverage) and Zone 3 (geographical expansion buffer of Zones 1 and 2). So, overlaying the UCP classification of areas eligible for subsidies is not therefore fully consistent with the zoning categories of the 2007 plan for Tecámac.

[100] Interview with Technical Secretary, Tecámac, State of Mexico, 5 November 2018.

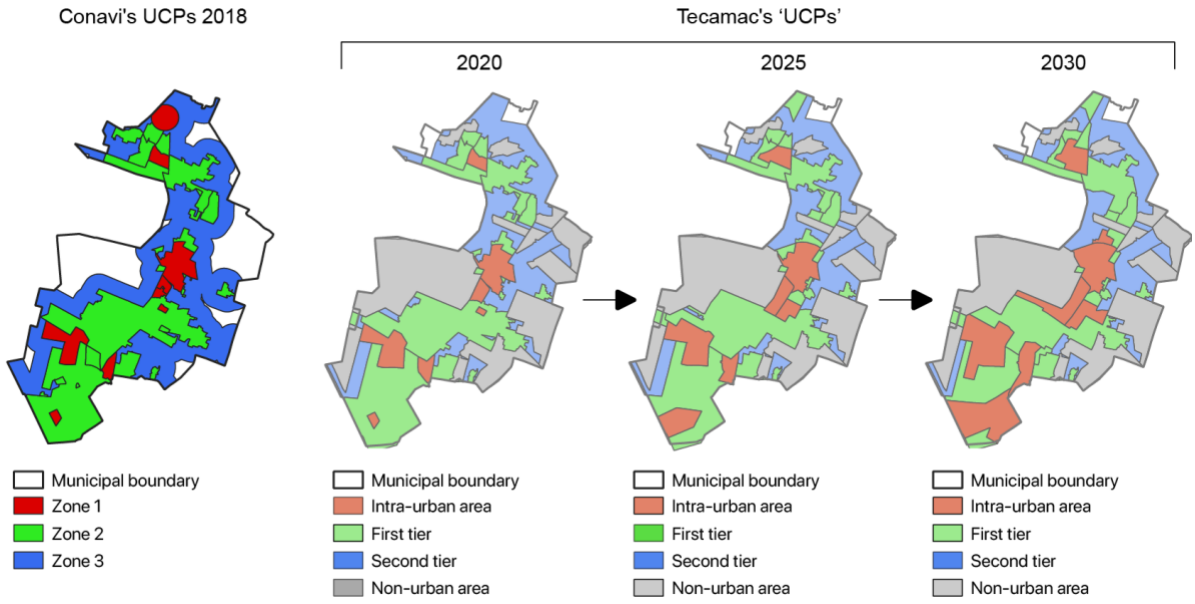
Besides the different character of each instrument, this discrepancy exists in part because different sources of information were used to determine their existing urban areas. The UCPs incorporate a series of geostatistical data to define urban and semi-urban areas (Zone 1 and Zone 2 classification) including population (from 2015) and economic census data (from 2014), housing and enterprise location and urban enumeration districts (from 2018) (see Chapter 4). By contrast, Tecámac's urban areas are based on cadastral data and on the State authorisations of housing developments by 2007. As most local planning instruments in Mexico are not based on GIS, they rarely integrate socio-demographic information such as population, housing or economic indicators in their spatial assessment of the municipality, nor in their future development strategies (Monterrubio 2013; INEGI 2019a). By integrating these indicators in its definition, the UCPs therefore reflected a more accurate picture of the current urban conditions at the time of the planned update (2018) than the outdated information in the existing municipal plan (2007).

Noticing this mismatch between the existing municipal plan and the UCPs, the technical team in Tecámac opted to use UCPs as a base but adjusted their definition according to their own needs. First, they subtracted from the UCPs the areas that they knew were not to be developed (like the Cerro de Chiconautla protected area, or the military base of Santa Lucía). Second, the team classified Zone 1 polygons as intra-urban built-up area. Except for the removal of a Zone 1 polygon at the north of the municipality (which surrounded a factory), the proposed intra-urban area for 2020 was very similar to the original Zone 1 (see red zones in first and second map, from left to right, in Figure 7.3). Third, in relation to Zone 2, which is defined according to share of access to basic services, the Tecámac team decided to replace that parameter because the standard to which it refers was easily met—virtually all households in Tecámac have access to basic services. Instead, they defined Zone 2 polygons as the 'first tier' of development (i.e. where construction was already taking place) based on the location of housing authorisations published in the State of Mexico's official gazette. Fourth, because Zone 3 is simply a geographical buffer of 900 meters from Zone 1 and 2, the team decided to dismiss this definition and instead incorporate existing land reserves of the municipality, giving preference to the presence of vacant plots for infill development and densification rather than expansion to greenfield areas.

All this allowed Tecámac planners to create a more useful variation of the UCP zones, which corresponded more closely to their current urban conditions (Figure 7.3). The technical staff

member with whom I spoke considered the UCPs 'useful as a planning reference because they help us to define the territory and to know where to start classifying it'.[101]

Figure 7.3 | Tecámac's proposed versions of UCPs for the years 2020, 2025 and 2030



Source: Author, based on Municipality of Tecámac, Sate of Mexico 2018 (unpublished plan)

But the team did not stop there. Based on this assessment of the current urban situation, they defined future growth zones to be developed in different stages, for the years 2020, 2025 and 2030 (see second to fourth map, from left to right, in Figure 7.3). This inclusion of different stages implies that the team understood the temporality of urban development, where non-urban areas that are planned for future development will become urban with time. This temporality is also very much present in the definition of the UCPs, and it is what allows the instrument to keep up to date with urbanisation processes.

In this way, Tecámac's technical team developed their own custom-made version of the UCPs. Using the UCPs as a tool to diagnose the current urbanisation processes, the technical team was able to distinguish 'tiers' of stages of development and to define where and how they wanted the built-up area to grow in the future. As the technician pointed out, they 'created a "remastered version" of the UCPs, projecting urban growth from the containment perimeters'.[102] This exercise clearly illustrates the potential of using the UCPs as a planning

[101] Interview with technician, Urban Planning and Information Department, Tecámac, State of Mexico, 5 November 2018.

[102] See previous footnote.

policy. The technician nonetheless criticised the fact that the UCP methodology for the definition of the different subsidy zones was simply replicated through the country, without involving local governments in their definition or validation:

> I think that the UCPs ought to recognise the municipal territory and not be generalised across the entire country. It is not appropriate to apply a single formula to the whole country. I think it is extremely important to consider areas that are not meant to be developed, otherwise we could end up promoting development in natural protected areas […]. Nonetheless, I do think the UCPs were a base to start from, in order to improve them.[103]

Although the 2018 update to Tecámac's urban development plan was never approved, the thoughtfulness and rigour of its methodology based on the adaptation of the UCPs could surely have made a useful contribution to planning in the area. To date (early 2022), Tecámac has not yet published an updated Municipal Urban Development Plan, with only a General Development Plan published in 2019 (focused on socio-economic development rather than specifically on urban development). In 2020, however, SEDATU published a regional development plan for the northern sector of the Metropolitan Area of Mexico City with a particular emphasis on the municipalities surrounding the Santa Lucía international airport (SEDATU 2020b). This included an urban assessment and a spatial development strategy for the municipalities of Jaltenco, Nextlalpan, Tizayuca, Tonanitla, Tultepec, Tultitlán, Zumpango and Tecámac. There is no mention of the UCPs in the regional plan. Instead, a model of 'spatial suitability'—which defines the areas that are more suitable for urbanisation based on a series of variables including regulation, land use, services coverage, new infrastructure projects and risk zones—is included for the whole region (SEDATU 2020b). The regional plan offers a comprehensive development strategy, integrating urban development across municipalities. Ideally, this should be something that could potentially be achieved with an improved version of the UCPs. The UCPs, however, were not included in the regional plan. The creators of the plan (developed by SEDATU in collaboration with the InterAmerican Development Bank) were likely to have the technical skills to develop a more advanced model to assess suitability for future development. The regional plan, however, is a direct response to a major infrastructure project (i.e. the new international airport), suggesting that this degree of detail and municipal coordination in urban planning is likely to occur only when such large infrastructural investment is at play.

[103] Interview with technician, Urban Planning and Information Department, Tecámac, 5 November 2018.

7.3 Failure to adopt the UCPs as planning instruments

The case of Tecámac offers a remarkable example of the potential contribution that the UCPs could make to local urban planning. During my field work I interviewed municipal personnel in the neighbouring municipalities of Zumpango and Huehuetoca to see if there were similar examples of the incorporation of the UCPs into their local urban planning strategies. None of those interviewed were familiar with the UCP policy; some of them were not even familiar with the federal housing subsidies policy. This is remarkable considering that, after Tecámac, Zumpango and Huehuetoca are the municipalities in the State of Mexico with most authorisations of social housing units since 2000 (*Gaceta de Gobierno del Estado de México* 2019). One would have thought that the municipalities with the highest rates of social housing development would be those paying attention to federal regulations that could have a dramatic impact on the production and location of housing.

There are many possible explanations as to why these municipalities have failed to adopt the UCPs as a supplementary planning instrument. First of all, it could be due to limited technical and financial skills in the municipalities, as some have argued that much of the failure to implement urban planning policies in Mexico has been associated with lack of financial means and technical skills (Gilbert and De Jong 2015). Alternatively, it could be that the existing governance and institutional architecture defining local urban planning has not allowed innovation in urban planning, given that the political and institutional environment play a key role in policy adoption and successful implementation (Grindle 2007; Goodfellow 2018).

I argue that municipal competency in urban planning has something to do with municipalities being able or willing to adopt the UCPs as supplementary planning instruments. To understand why one municipality is successful in updating a policy with an innovative approach, using the UCPs as a base, I compare the financial, technical, political and institutional context of Tecámac against those of the neighbouring municipalities of Huehuetoca and Zumpango.

7.3.1 Municipal finance

The diversity in the characteristics of each municipality is often reflected in their amount and source of municipal income. Municipal income in Mexico depends on local revenue and federal revenue transfers. Local revenue comes from charges for service provision (water, sewage, etc.), urban development and building permits and tax collection (mainly property taxes). Revenue transfers are federal grants either to support specific projects or services (e.g.

urban development and service provision) or to use as the municipality chooses. In general, the proportion of local revenue tends to remain low and municipalities largely depend on federal revenue transfers (Grindle 2007; Isunza and Méndez 2011; Wilkinson 2012).

If access to finance is the main factor interfering with a municipality's ability to update its planning instruments, we would expect Tecámac to have a higher municipal income and a higher proportion of internal revenue than other municipalities. The higher a municipality's internal revenue, the greater the freedom it has to decide how to spend it (for example, additional income could be used to invest in innovation in planning or in updating existing planning instruments).

Average municipal income per capita, however, has remained around 2,900 MXP (£100 GBP) between 2010 and 2017 for all three municipalities (INEGI 2018) (Table 7.1). In terms of the source of income, the municipality with the highest share of internal revenue from total income has been Huehuetoca with an average of 37% between 2010 and 2017, although this percentage fell to just 31% of the total municipal income in 2017 (INEGI 2018). Tecámac's share of internal revenue has remained at an average of 34% of the total municipal income between 2010 and 2017. By contrast, the share of internal revenue in Zumpango has remained particularly low, at an average of 26% of the total municipal income between 2010 and 2017 (INEGI 2018). So, while Huehuetoca performed slightly better in terms of amount of income and share of internal revenue, Tecámac had just a slightly poorer performance. Only Zumpango showed a consistently lower share of internal revenue across the periods analysed. Internal revenue therefore seems to have only a small potential role to play in municipal capacity to incorporate innovations into the planning process.

Table 7.1 | Municipal income by source: Huehuetoca, Tecámac and Zumpango

	2010	2011	2012	2013	2014	2015	2016	2017
Total income per capita [MXP]								
Huehuetoca	2,724	2,583	2,954	2,566	3,283	3,125	3,223	3,202
Tecámac	1,904	2,459	2,865	2,596	3,044	3,277	2,866	3,521
Zumpango	3,418	3,417	2,971	2,374	3,199	2,139	2,401	2,685
Internal revenue per capita [MXP]								
Huehuetoca	1,321	1,056	1,266	881	1,001	986	1,026	1,006
Tecámac	694	780	1,008	908	960	1,082	1,076	1,184
Zumpango	1,087	1,117	814	552	626	491	589	611
Internal revenue from total income [%]								
Huehuetoca	48.5%	40.9%	42.8%	34.3%	30.5%	31.6%	31.8%	31.4%
Tecámac	36.4%	31.7%	35.2%	35.0%	31.5%	33.0%	37.5%	33.6%
Zumpango	31.8%	32.7%	27.4%	23.2%	19.6%	23.0%	24.6%	22.7%

Source: Author, based on data from INEGI (2018) and population projections from CONAPO (2020).
Internal revenue: own revenue sources including penalties, contribution for service provision, rights and taxes

It is relevant, however, to look a bit closer at the sources of internal revenue. As discussed earlier, one of the main sources of municipal internal revenue comes from property taxes. Although municipal tax collection is still weak and needs to be modernised (Uribe 2013), the possibility of increasing the internal revenue with property taxes is one of the reasons why municipalities object only half-heartedly to the 'imposition' of new conjuntos urbanos. In the end, new conjuntos translate into housing units which will likely transform into future taxpayers, generating additional revenue for the municipality. This dependence on property tax has also enhanced municipalities' desire to accommodate upper-income residential land uses. The Deputy Director of Huehuetoca had this to say:

> [N]ot to belittle the situation we have with the current living standards, but here [in Huehuetoca] there is only social interest housing, small units only six metres wide. We should actually have a balanced supply and provide housing for people who can contribute [in terms of property tax], right? For example, [the occupants of] high-income residential developments could generate capital for the municipality through their taxes. A small house does not pay as much as a 500 square metre one [referring to a middle-income housing unit].[104]

In fact, other municipalities in the Metropolitan Area of Mexico City have been more radical in their efforts to attract higher-income residential development. For example, Tizayuca's 2013

[104] Interview with Deputy Director of Urban Development, Huehuetoca, State of Mexico, 12 November 2018.

urban development plan explicitly 'banned' the production of social housing developments from their municipality:

> In the medium term [the Plan] will seek to restrict the production of social interest housing, of lower value. In the long term, it will seek to eliminate social interest housing [production], so that there is a reasonable mix of middle- and high-income housing, which will allow us to balance the socio-economic situation in the locality. (Gobierno del Municipio de Tizayuca 2013, p. 50)

The goal of 'banning' social interest housing disregards the fact that low-income groups' share of Tizayuca's population is higher than the regional average, which underlines the need for precisely more affordable housing units (UN Habitat, INFONAVIT and SEDATU 2016b).

Beyond this mismatch between housing needs and aspirational demands (i.e. to attract higher-income newcomers), local authorities are frequently unaware of, or indifferent to, the impact conjuntos urbanos have on the financial and administrative stability of the municipality, whichever group they target (Eibenschutz and Goya 2009). Yet once housing developments are completed, the municipality becomes responsible for maintenance and running costs (e.g. street maintenance, sanitation, waste collection, police and fire services) (UN Habitat *et al.* 2012; CIDOC and SHF 2014). Moreover, the high vacancy rates commonly observed in the newly developed conjuntos may imply that the anticipated new taxpayers never arrived.

If municipalities are eager to welcome the influx of conjuntos that will likely be a burden to municipal expenditure for maintenance and infrastructure, it would seem only logical that the municipalities should have an interest in updating their urban planning instruments, as this would be the best way to regulate the location of new conjuntos and to make the most efficient use of existing infrastructure. In order to assess to what degree the introduction of new conjuntos has been profitable for the municipality, we can compare the amount of tax collected with municipal expenditure on the investment needed to support these developments (Table 7.2).

Table 7.2 | Municipal tax collection and public investment, Huehuetoca, Tecámac and Zumpango

	2010	2011	2012	2013	2014	2015	2016	2017
Taxes collected per capita [MXP]								
Huehuetoca	533	548	729	463	463	447	493	490
Tecámac	467	434	482	574	560	895	796	903
Zumpango	668	765	769	447	479	377	443	428
% of internal revenue from taxes [%]								
Huehuetoca	40.3%	51.9%	57.6%	52.6%	46.3%	45.4%	48.0%	48.8%
Tecámac	67.3%	55.6%	47.8%	63.1%	58.4%	82.8%	74.0%	76.3%
Zumpango	61.4%	68.5%	94.5%	80.9%	76.6%	76.8%	75.1%	70.1%
Public investment per capita [MXP]								
Huehuetoca	375	209	471	429	896	767	882	785
Tecámac	320	654	626	609	687	854	542	842
Zumpango	241	440	381	224	630	459	469	429

Source: Author, based on data from INEGI (2018) and population projections from CONAPO (2020). Internal revenue = own revenue sources including penalties, contribution for service provision, rights and taxes

For the municipalities studied, internal revenue from taxes has been growing significantly, reaching 49%, 76% and 70% of total internal revenue in 2017 for Huehuetoca, Tecámac and Zumpango, respectively (INEGI 2018). This could be an indicator of more efficient tax collection practices and a possible reflection of the recent market shift towards middle- and high-income households (see Chapter 5), which would likely contribute more taxes than low-income households. In terms of public investment per capita, however, throughout the municipalities we see that the investment equals, and in some cases exceeds, the amount of taxes collected per capita. Huehuetoca and Tecámac had a higher amount of public investment than Zumpango, with 785 and 842 MXP per capita in 2017, respectively, in comparison to 429 MXP per capita in Zumpango (INEGI 2018).

We see a mismatch that exposes the lie that 'more conjuntos mean more tax revenue', particularly when considering the investment in public works required to cope with the demands of this housing model. Moreover, if municipalities are investing more than they collect locally, it could mean that they would not have the monies remaining to invest in improving their planning instruments. And yet Tecámac has indeed invested in updating its plans, and even included innovative approaches by incorporating the UCPs as a basis for analysis. We can only conclude that neither the amount/source of municipal income nor the total amount of public investment has played a significant role in making Tecámac financially stronger than Huehuetoca or Zumpango. We must be aware, however, that these are only three

of 76 the municipalities that form part of the Metropolitan Area of Mexico City, so results are not representative and cannot be generalised to or beyond the metropolitan area. There may indeed be municipalities whose financial conditions have allowed them to have the capacity to update and even innovate their planning instruments.

7.3.2 Human resources and skilled labour

Municipal human resources also play an important role in urban planning capacity. Particularly when considering the short administrative term that municipalities have (three years), this is an important factor in determining the degree of policy continuity and the potential 'resilience' to a possible change of administration. The posts of public officials make them more or less vulnerable to be removed if another political party takes over (Jones and Ward 1998). Staff turnover as a result of electoral change is related to the balance between the different types of posts (Nickson 2018). For instance, mayors make direct appointment of mid- to high-ranking officials to 'in confidence' posts, so these posts usually change when the administration changes. Unionised employees, on the other hand, have lower status but tend to survive administration changes better than other employees (Grindle 2007). The lack of continuity in personnel resulting from administration changes motivates incoming mayors to reject previous projects proposed by their predecessors and instead promote their own new projects (Nickson 2018). In 2017 96% of the posts in Tecámac's municipal government were 'in confidence' posts (Table 7.3), followed by Zumpango with 75%, and Huehuetoca, with just 35% (INEGI 2019a).

Table 7.3 | Type of municipal posts by municipality in 2017

	Huehuetoca	**%**	**Tecámac**	**%**	**Zumpango**	**%**
'In confidence' post	590	34.5%	2181	95.6%	973	74.7%
Unionised	577	33.8%	101	4.4%	142	10.9%
Occasional	542	31.7%	0	0.0%	188	14.4%
Total	1709	100%	2282	100%	1303	100%

Source: Censo Nacional de Gobiernos Municipales y Delegacionales (INEGI 2019a)

Another important aspect of municipal urban planning capacity is to have skilled personnel to carry out urban planning tasks. The maximum level of schooling is therefore used as an indicator of human capital among municipal personnel. We might expect Tecámac to have an overall higher proportion of skilled personnel that would be able to support innovations using the UCPs as a supplementary instrument. For all municipalities studied, however, the highest

educational level observed within the general personnel was a technical school degree (16% of the total personnel in Huehuetoca, 18% in Tecámac and 8% in Zumpango). In Huehuetoca and Zumpango, most of the personnel (35% and 37%, respectively) had only a secondary education, while in Tecámac the majority (26%) had a high school degree (Table 7.4). It is important to note, however, that in the data used to estimate these figures over 10% of the total personnel are classified as 'Missing info'. It is therefore possible that personnel in the Urban Planning Departments, particularly those with 'in confidence' posts, fall within this category and may indeed have a higher educational level.

Table 7.4 | Level of schooling completed by municipal officials in 2017

Level of schooling completed	Huehuetoca	[%]	Tecámac	[%]	Zumpango	[%]
None	20	2.1%	110	4.8%	19	1.5%
Elementary	183	19.5%	341	14.9%	478	36.7%
Secondary	329	35.0%	583	25.5%	372	28.5%
High School	157	16.7%	602	26.4%	188	14.4%
Technical School	153	16.3%	402	17.6%	105	8.1%
Undergraduate	0	0.0%	0	0.0%	0	0.0%
Missing info	98	10.4%	244	10.7%	141	10.8%
Total	940	100.0%	2282	100.0%	1303	100.0%

Source: INEGI, Censo Nacional de Gobiernos Municipales y Delegacionales (INEGI 2019a).
Secondary: ages 11–12 to 13–14. High School: ages 14–15 to 17–18

7.3.3 Political setting

As we have seen, financial and technical skills are not the only factors when it comes to municipal capacity in urban planning, at least not for the municipalities analysed. It has also been argued that the 'political bargaining environment' plays a key role in the adoption and implementation of new policies, particularly in countries of the global south (Goodfellow 2013, p. 91). The political context in the three municipalities in question is different in ways that are worth mentioning and which might be related to how each municipality responded to the possibility of using the UCPs as a planning instrument. Different political parties have been in power at different periods in all cases since 1997, a feature which—unlike prolonged single-party rule—is commonly associated with good governance (Ward 1998; Grindle 2011).

Municipal elections in Mexico take place every three years, when the mayoral candidate with the highest number of votes is elected their party automatically becomes the party in power within the municipality. Up to the mid-2000s there were three main political parties in Mexico:

PRI (the centre-right Partido Revolucionario Institucional), PAN (the conservative right Partido Acción Nacional), PRD (the centre-left Partido de la Revolución Democrática). Although it was only in 2000 that an opposition party won the federal elections (with the PAN taking over after a 70-year PRI rule), municipalities had had different parties in their administrations much earlier (Uribe 2013). Recently, there has been a growth in representation from smaller political parties and cross-party coalitions have become more common.

Although political alternation has been associated with reduced corruption and could potentially promote good governance (Soto and Cortez 2015), when it comes to urban planning, the short municipal administration terms and the requirement for planning instruments to be coordinated with different governmental levels suggest that certain political continuity and alignment with the parties ruling at the State and federal level may be related to municipal planning capacity. This would ensure a long-term vision in urban policies and might allow better communication and coordination between governmental levels. From 2000 to 2012, Huehuetoca mostly had PRI administrations, either with or without coalitions with other smaller parties (Table 7.5). After 2013, Huehuetoca shifted to the PAN who continues to hold it today. By contrast, Tecámac had PAN administrations until 2009, and then shifted to the PRI (with and without coalitions) until 2019, when it elected the first municipal president from MORENA, a left-wing political party created in 2011 by former PRD party members, including the current president Andrés Manuel López Obrador.

Table 7.5 | Political party affiliation of elected mayors

HUEHUETOCA				
Mayor	**Political party**	**Term**	**State**	**Federal**
José Luis Castro Chimal	PAN-PRD-PMC	2019-2021	PRI	MORENA
José Luis Castro Chimal	PAN	2016-2018	PRI	PRI
Benito Jiménez Martínez	PAN	2013-2016	PRI	PRI
Juan Manuel López Adán	PRI-PVEM-PNA-PSD-PFD	2009-2012	PRI	PAN
Salvador Quezada Ortega	PRI-PVEM-PSN-CD-CDRD	2006-2009	PRI	PAN
Ignacio Reyna Corona	PAN-PT	2003-2006	PRI	PAN
Ramiro Martínez Ortega	PRI-PVEM-PNA	2000-2003	PRI	PAN
Marco Antonio Velázquez Reyna	PAN-PT	1997-2000	PRI	PRI
TECÁMAC	**Political party**	**Term**	**State**	**Federal**
Mariela Gutiérrez Escalante	MORENA	2019-2021	PRI	MORENA
Rafael Ramos González	PRI	2017-2018	PRI	PRI
Aarón Urbina Bedolla	PRI-PVEM-PNA	2016-2017	PRI	PRI
Rocío Díaz Montoya	PRI-PVEM-PNA	2013-2015	PRI	PRI
Aarón Urbina Bedolla	PRI-PVEM-PNA-PSD-PFD	2009-2012	PRI	PAN
Sergio Octavio Germán Olivares	PAN-PT	2006-2009	PRI	PAN
Aarón Urbina Bedolla	APT	2003-2006	PRI	PAN
Félix Ismael Germán Olivares	PAN-PT	2000-2003	PRI	PAN
Aarón Urbina Bedolla	PAN-PT	1997-2000	PRI	PRI
ZUMPANGO	**Political party**	**Term**	**State**	**Federal**
Miguel Ángel Gamboa Monroy	PT-MORENA-PES	2019-2021	PRI	MORENA
Enrique Mazutti Delgado	PRI	2016-2018	PRI	PRI
Abel Neftali Domínguez Azuz	PRI-PVEM-PNA	2013-2015	PRI	PRI
Alejandro C. Flores Jiménez	PAN	2009-2012	PRI	PAN
Enrique Mazutti Delgado	APM	2006-2009	PRI	PAN
Luis Decaro Delgado	APT	2003-2006	PRI	PAN
Rogelio Muñoz Serna	PRI	2000-2003	PRI	PAN
Ing. Armando Vargas Gaspar	PRD	1997-2000	PRI	PRI

Source: Enciclopedia de los Municipios y Delegaciones de México, (INAFED 2019). Names in bold highlight re-elected mayors

As Merilee Grindle (2007, p. 98) observes in her analysis of 30 municipalities in Mexico, '[w]here the party affiliation of municipal and state leadership coincided, the development of good relationships between governments was more certain.' This is true of Tecámac, where from 2013 to 2018 a PRI municipal government was aligned with both State and also federal government. It was under Enrique Peña Nieto's PRI presidency that the UCP policy was introduced in 2013, so it is logical that Tecámac's authorities adopted this policy as part of their urban planning strategies. In the case of Huehuetoca, which had been governed by the

PAN since 2013, an update of their development plan would have had to be approved by a State government held by the PRI, which might have led to its being subject to political opposition. This lack of alignment across governmental level often translates into a lack of communication, which could also explain why the Deputy Director of Urban Development of Huehuetoca did not know about the UCP policy.[105] Zumpango's administration was also aligned with the State and federal administrations between 2013 and 2018. If party alignment was the main reason for Tecámac adopting federal policy (i.e. the UCPs) locally, why did Zumpango not do something similar?

The answer to this question may be that, besides political alignment between parties in power at different levels, re-election also plays an important role in ensuring accountability of local governments and promoting continuity in the policies and programmes implemented (Nickson 2018). Before 2018, mayors in Mexico could not be immediately re-elected, meaning that they would need to let one term pass before being able to stand for the same post again. Re-elections are a way to cope with the relatively short terms of Mexican municipal administrations, as a way of helping to ensure policy continuity (Ward 1998; Uribe 2013). Both Zumpango and Huehuetoca only recently had their first ever re-elected mayor (in the elections of 2016 and 2018, respectively). In Tecámac, however, Mayor Aarón Urbina had been elected four times, although never consecutively, representing three different political parties (Ibarra García 2017). This apparent political continuity might have played a role in creating a robust planning system in Tecámac. Urbina, however, is known locally as the 'cacique of Tecámac' for having family members involved in political posts and for owning many businesses in the municipality. In fact, he is suspected to have attempted to interfere with municipal elections in 2018 by supporting candidates from different parties simultaneously (Revista Proceso 2018). Eventually, the opposing candidate from MORENA won in both Tecámac and federal elections in 2018.

7.3.4 Policy entrepreneurs

The figure of the policy entrepreneur could help shed light on why, with otherwise similar financial and human resources, Tecámac has performed better than Huehuetoca and Zumpango in attempting to update their planning instruments in an innovative way by using the UCPs as a supplementary tool. Political entrepreneurs are actors who perform as 'strategic players in

[105] Interview with Deputy Director of Urban Development, Huehuetoca, State of Mexico, 12 November 2018.

complex political processes [who] increase opportunities for reform' (Grindle 2007, p. 87). Emily Wilkinson (2012) identifies such figures as being key to the implementation of disaster reduction policies in south-east Mexico, arguing that the presence of such actors encouraged the implementation of innovative policy reforms that contributed to better local governance practices.

One unusual feature of urban planning in Tecámac is the fact that the overhaul of the urban plan was undertaken by the Technical Secretariat (*Secretaría Técnica*) instead of urban planning officials, as would normally be the case. In Tecámac, the senior Technical Secretary in charge of the Secretariat had been working in the municipality for a long time and had even survived a number of changes of administration. At one point, he had led the municipal urban development branch, where he was responsible for drawing up the 1994–1996 municipal urban development plan.[106] He was also interested in academic research and we met while attending a conference at the Universidad Autónoma Metropolitana in Mexico City. The fact that Tecámac had an innovative planning strategy is perhaps related to this figure who, together with the political context outlined above, could have made all the difference. A local developer in Tecámac alluded to this:

> It is not the same if you come with a planning issue to Tecámac, as if you go to Temascalapa, where you will find the mayor's neighbour, taken out of his workshop, now working as the Director of Urban Development. In addition, you have the mayor, who has a political and personal vision. The question is to connect all those interests when you try to implement a policy.[107]

It seems that this is what happened in Huehuetoca, where part of the failure to update the planning instruments may derive from the fact that the Deputy Director of Urban Development had only been appointed 18 months before I interviewed him in 2018 and had limited knowledge of urban planning in general. In fact, he had no knowledge at all of the housing subsidies programme, let alone of the existence of the UCPs, suggesting that his line manager was also unaware of them. Before his appointment, the deputy director had been in charge of supervising municipal public works. He mentioned that being close to the elected mayor had helped him to obtain his current position, a job he would otherwise never have considered:

> The mayor trusted me, because of my career history and the way I'd carried out my previous work, and he asked me to support him in the department [Urban Planning].

[106] Interview with the Mayor's Technical Secretary, Tecámac, State of Mexico, 5 November 2018.

[107] Interview with local housing developer, Tecámac, State of Mexico, 5 November 2018.

> I didn't have a lot of experience when I arrived in this post because I was previously in the civil engineering area where I reviewed public works as an auditor. So, it's something totally different.[108]

There was not enough evidence to prove or disprove the presence of political entrepreneurs in Zumpango. Some of the personnel had been working in the municipality since 2010 and, in comparison with Huehuetoca, seemed to be more knowledgeable about urban planning in the municipality (but not about the UCPs).

It would appear then that, in Tecámac, the presence of policy entrepreneurs was key in enabling innovation in urban planning, in comparison to Huehuetoca and Zumpango. The key actor's awareness of national and international urban strategies may also have played a role in the way these strategies were incorporated into local urban planning, suggesting policy entrepreneurs play a key role in policy mobility.

7.4 Conclusion

The impact of the UCPs on urban planning needs to be analysed in the context of the complex governance structures involved in the creation and implementation of planning instruments. In the Mexican context, decentralisation in planning processes does not necessarily translate into a greater capacity to create, update or implement urban planning instruments, let alone innovate them. Decentralisation has translated into municipalities being given responsibilities but limited power in the definition of their planning instruments and in the location of new authorised housing developments. Housing developments are one of the main drivers of urbanisation patterns in peripheral municipalities, and the one the government has the greatest ability to guide. The UCPs emerged within this context and perhaps precisely because they are not traditional planning instruments, subject to a complex implementation process, they have managed to bypass these institutional and regulatory structures and made it—in theory at least—possible for them to be borrowed and used proactively in local planning practices (Thomas and Grindle 1990).

Knowledge about the on-ground conditions also proved essential for updating urban planning instruments, as in the case of Tecámac where the UCPs contributed to a better understanding of the current urban situation and enabled future growth strategies to be identified with likely greater accuracy. In addition, as instruments of high priority for the federal government policy,

[108] Interview with Deputy Director of Urban Development, Huehuetoca, State of Mexico, 12 November 2018.

the UCPs have been consistently updated with new information. This makes them reflect the reality of urban development in greater and more current detail than the poorly regarded conventional planning instruments.

The willingness and the ability of the studied municipalities to adopt the UCPs as supplementary planning instruments was not directly related to a particularly strong financial or technical component in the municipalities, although this does not mean that there are no other municipalities with the skills and resources that allow them to update and innovate their planning instruments. Instead, it was the political setting and the presence of key actors—like policy entrepreneurs—that ultimately allowed the adoption of the UCPs in Tecámac. As Grindle (2007) observed, the presence of policy entrepreneurs in combination with a weak institutional context provided an opportunity to induce change. In the case of Mexico, having policy entrepreneurs was key for implementing innovative approaches to urban planning, like the active use of UCPs as an analysis layer in Tecámac. This might not however have been possible without an adequate political and institutional setting, where party alignment across different governmental levels and continuity of administrations (and of their senior top-rank officials) led to the successful update of the planning instruments.

In sum, uneven decentralisation, the existence of policy entrepreneurs and the adequate political and institutional setting allowed alternative forms of planning, even with an instrument that was not meant to be used for planning. This does not mean, however, that UCPs may replace the municipal plans. On the contrary, if properly aligned, they could help the implementation of urban development plans by understanding the driving forces of urbanisation (i.e. the incentive to build more conjuntos urbanos) and using them to steer urban development. Since the proposal for the plan in Tecámac was never really implemented, I recognise that the findings presented in this chapter may only be indicative of the full adoption of the policy. There is therefore more research needed in order to explore more cases across Mexico where the UCPs have been adopted (for a case in Guanajuato see Martínez 2018). The case of Tecámac, however, offers evidence in local innovation in urban planning and a glimpse of the possibilities offered by the adoption of the UCPs as complementary urban planning instruments.

As I discussed at the end of the previous empirical chapters, I would like to offer a reflection on what this chapter's findings mean for the conceptualisation of the UCPs as 'peripheral planning', a concept introduced in Chapter 2 based on Caldeira's work on 'peripheral

urbanization' (2017, p. 4). In this review of the impact of the UCPs on urban planning, we can identify the characteristics of the temporality of urbanisation processes and the presence of transversal interactions involved in peripheral planning.

First, Tecámac's case represents an exercise in which the UCPs were put into practice as a supplementary planning tool. This innovative exercise revealed the potential of the UCPs in representing the different temporalities of urbanisation processes. Tecámac's custom-made version of the UCPs managed to represent the different phases of urbanisation, which were classified as zones with different degrees of urbanisation (from non-urban to semi-urban and urban). These zones evolved in the different versions of Tecámac's UCPs (for 2020, 2025 and 2030).

Second, there was evidence of the complexity of transversal interactions between different groups of actors in the process of creating municipal urban development plans. In the case of the municipal plan, the State still has the last word when it comes to authorising an update, while the municipality's role remains subordinated (both by the governance architecture and by their income being largely dependent on federal transfers). We also saw how the interaction with developers often becomes a burden for the municipalities when they have to chase developers up to complete unfinished projects. There was also evidence of the lack of interaction between neighbouring municipalities, which have created dislocated planning strategies. These interactions may potentially change if the UCPs were integrated in this process. Tecámac's case offers the opportunity to imagine how using the UCPs as a supplementary planning instrument may overcome some of these issues. For example, the UCPs could particularly assist the coordination of urban development strategies at different governmental levels and, more importantly, between municipalities. At the moment, however, the UCPs are emphasising the subordinate role of municipalities, since there was no evidence of interaction between federal officials and the local government for the definition of the UCP zones, which may translate into contradictory development strategies. As discussed in Chapters 4 and 6, the UCPs have mainly reflected interactions between private developers and the federal state.

8 Using financialised housing as urban planning

This thesis has explored the potential and the consequences of using financialised housing as a planning instrument. By looking at the implementation of the Urban Containment Perimeters (UCPs) in Mexico, I hope to have contributed to debates on housing and urban planning. The originality of this research lies primarily in the way multiple methods were used to explore the potential of an innovative policy emerging from the global south, like the UCPs, as a point of departure from which to begin thinking about housing and planning in an integrated fashion.

In this chapter, I revisit my research questions, reconsider my initial assumptions, and summarise my key empirical findings. I then expand my findings into a conceptual discussion that highlights my contributions about responding to recent urbanisation processes with peripheral planning. In the final section of the chapter, I outline the policy implications of my findings and suggest some avenues for future research.

8.1 Revisiting assumptions and stating key findings

When I defined my research questions, I already had assumptions about where the research might lead. These were based on my general knowledge about Mexico's housing and urban planning processes, as well on the perception of the UCPs that I came across in both academic and public sector circles. In general, I encountered negative attitudes towards the UCPs, for doing either too little (i.e. maintaining the prevailing financialised housing model) or too much (i.e. interfering with local planning competencies).

8.1.1 Have the UCPs been effective in containing urban expansion and improving the location of housing?

The assumption that resonates across most existing work on the subject is that the UCPs are not effective and that they simply perpetuate the prevailing neoliberal housing model that relies on the financialisation of housing to provide for the low-income population (Monkkonen and Giottonini 2017). While financialisation is still a key component in accessing housing (for low-, middle- and high-income housing), it needs to work in combination with federal subsidies for it to be accessible to the low-income sector. This makes subsidies the key incentive that the UCPs employ to shape urbanisation which, until recently, was largely driven precisely by the peripheral location of these low-income housing developments (Eibenschutz and Goya 2009). But has this incentive been enough to change urbanisation patterns? I addressed this question

by assessing the contribution of recently authorised housing developments to urban expansion in the Metropolitan Area of Mexico City.

After the implementation of the UCPs the product offered has changed mainly insofar as it is located in different places. As my findings for the Metropolitan Area of Mexico City confirm, a greater proportion of recently authorised low-income housing developments are now more likely to be located within the UCPs (see Chapter 5). Although the housing developments are broadly the same as before, in the sense that there have not been substantial improvements in building quality and design, they are now at least in 'better' locations than they were before the UCPs were implemented. While most of these new developments can be classified as being located in non-urban areas (i.e. Zone 3), these are at least adjacent to existing urban (Zone 1) or semi-urban areas (Zone 2) with better access to basic infrastructure and in closer proximity to job sources. This 'improvement' in the location of housing might seem relatively trivial, but it could potentially contribute to spatial justice by ensuring access to adequate housing for the lower-income population and even help reduce the risk of housing abandonment—as high vacancy rates have been directly correlated with increases in distance to sources of employment (INFONAVIT 2015 cited in Reyes 2020b). Despite the policy being effective in containing newly authorised low-income housing within the designated zones, however, these zones need to be reviewed to ensure that they better reflect an 'improved' quality of the built environment. There are still considerable differences within what is classified as urban, semi-urban or non-urban, though this concern is partially addressed by the newest version of the UCPs (2018) which have added a subclassification within both urban (Zone 1) and semi-urban (Zone 2) areas that differentiate between developments according to how close they are to urban amenities (see Figure 4.2 and Table 4.4 in Chapter 4).

While the focus of this investigation was on tracing the changing geographies of financialised housing in relation to urban expansion, an important finding was that areas that suffered a higher increase in growth in the built-up area were not directly related to financialised housing (whether low-, middle- or high-income) but to development of a different kind. This growth could be caused by industrial or commercial developments, but it is more likely that it was caused by irregular settlements, which favour locations adjacent to existing residential development (Connolly 2019). Further research is needed to provide supporting evidence of the potential influence of the UCPs on the location of irregular settlements.

By looking at the impacts of the UCPs on the location of and types of recently authorised housing, my findings show how regulation had a direct effect on the market. After an initial shock, however, the housing industry adapted to the UCPs either by pushing for the expansion and/or redefinition of its boundaries, or by shifting target market segments towards higher-income groups. This exemplifies how, despite restrictions introduced on the location of housing, the market adapted to the policy. More importantly, this shift towards an increasingly larger share of middle- and high-income developments poses a serious threat to the production of affordable housing options for the low-income population, which could enhance and reproduce existing social inequalities.

8.1.2 What logics guided the creation of the UCPs? How have the UCPs been influenced by other actors?

As part of the assumption of the UCPs doing too little to change the prevailing financialised housing model, critics also commonly blame the definition of the UCP zones for having been influenced by the construction industry during their conception and implementation. Have private developers manipulated the UCPs to fit their development needs? The short answer would be yes. I addressed this question by tracing the narratives behind the origins and implementation of the policy among federal planning officials and consultants involved in its creation, showing that the UCP zones have been modified at different stages of their conception and implementation. I have provided evidence of the mechanisms put in place by the government to ensure developers would not be hit too hard and of negotiation over the boundaries after the implementation of the policy to include a large part of developers' private land reserves (see Chapter 4, Section 4.3).

The innovative character of the policy and its effectiveness was therefore challenged by a constant negotiation and customisation of the subsidy zones and the continuous redefinition of the policy's algorithms and rules. This created techno-politics around the algorithms where high-level political pressure collided with technocratic aspects of the rules' definition. This was evident from the contrasting statements from top- and mid-range officials from CONAVI who considered the modifications either the strongest or the weakest aspect of the policy.

8.1.3 How have developers' market strategies changed as a response to the implementation of the UCPs?

By identifying the moments where the UCP policy intervened in the housing development process—i.e. access to finance and housing commercialisation, I was able to trace the narratives behind private developers' responses to the implementation of the UCPs. Despite the mechanisms outlined above to protect developers' interests, the UCPs still had a great impact on all developers as it affected their business model. The decisions developers took regarding either diversifying their business model or remaining primarily focused on producing low-income housing meant their success or failure in adapting to the UCPs and in some cases their commercial viability (Chapter 6). The UCPs, therefore, triggered a clear shift in land and housing market dynamics. Location became a determinant component of developers' business model. Before the UCPs were put in place, the low land prices, the large plot size and its location in 'friendly' municipalities with lax regulations were the main characteristics developers considered before purchasing land for low-income housing developments, which led them to prefer remote locations in and beyond the urban peripheries (Libertun de Duren 2018). After the UCPs were introduced, my findings show how, for the first time, developers began to seriously consider other factors such as proximity to jobs and urban amenities. Without these factors, developers would not be able to obtain housing subsidies, thus limiting their profits.

Besides modifying developers' business model, the UCPs may have created a premium of landowners who were benefited by their land being located within the UCPs. This relates especially to those with non-urban land (in Zone 3), which my findings showed was the favourite choice for developing both low-, middle- and high-income housing. This highlights the potential influence of the UCPs on ejido land market dynamics, increasing the pressure of transforming agricultural land to urban land but also collective modes of land tenure to fully privatised land. As has been observed with other restrictive land management policies, like greenbelts or urban growth boundaries, the lack of supplementary mechanisms to regulate the land market often promotes land speculation and a rise in land and housing prices (Hall 1974; Prior and Raemaekers 2007). In this way, landowners may have benefited from a subsidy meant to help low-income residents.

By looking at the how private developers responded to the implementation of the UCPs, my findings highlight how spatial considerations were foregrounded when developers' business

model began to prioritise the location of housing. Adding restrictions on the location of housing based on an explicitly spatial definition facilitated the implementation of the UCPs since they were accompanied by clear rules of eligibility for subsidies. In fact, developers welcomed the certainty brought by this spatial definition of the subsidy zones. Without this spatial component, it would have been difficult to ensure that criteria such as proximity to jobs and services were really satisfied, especially considering that the policy was applied across the nation's cities. If this spatial component of the policy had been defined more carefully, e.g. by incorporating the knowledge of local actors, the UCP policy could have been even more effective in achieving its aims.

8.1.4 How have local planning officials' development strategies been affected by the implementation of the UCPs?

I addressed this question, first, by tracing the governance processes and the institutional architecture behind local urban planning, and second, by investigating a case of the successful adoption of the UCPs as a supplementary planning instrument and comparing it with two contrasting cases. An assumption I developed early on in this research is that the UCPs have the potential to support the process of local urban planning. Based on the analysis of this one successful case, we might cautiously agree. The UCPs could potentially help local officials gain a better understanding of current urban conditions in their municipalities (as well as in the adjacent ones) as a basis for defining their future urban growth strategies. This could be a great help to those municipalities that struggle with technical skills. As we have seen, however, the definition of the UCP zones remains generalising as it classifies land according to different degrees of urbanisation that apply throughout the country. This means that for the UCPs to properly support local urban planning, municipalities and other key local actors need to be actively involved in the process of the customisation of the UCP zones. Only then could the UCPs fully reflect local conditions 'on the ground' and incorporate municipalities' planning strategies and development preferences. This was the case in Tecámac where the presence of key motivated actors, in combination with a suitable political and institutional setting, permitted important policy innovation. Although Tecámac's plan was never implemented, we can speculate on the impact that the adoption of the UCPs as a supplementary planning tool may have if other municipalities were to incorporate them into their planning practices. As shown by the overall results for the Metropolitan Area of Mexico City, the UCPs had an impact on steering urbanisation patterns by bringing new developments adjacent to existing ones (see

Chapter 5). This seemingly minor success is already a difficult task to achieve for municipalities considering the current status of their local urban plans. The UCPs could therefore have the potential to help municipalities steer urbanisation processes towards the desired areas.

On a more general reflection, the UCPs also represent innovation in urban governance. By using housing as a planning tool, the UCPs provided a response to existing governance structures that do not work as they are supposed to do in relation to urban planning. As we have seen, in Mexico the incomplete decentralisation of government structures has interfered with the implementation of urban planning. UCPs were created from a federal housing institution, while traditional planning instruments are defined by municipalities. Because of this non-planning character, the UCPs could bypass the conventional bureaucratic channels to which urban planning instruments are subject and in which they often get trapped. In this sense, this research provides evidence of policy innovation and how new forms of knowledge emerge from unconventional sources. In this case, knowledge about urban planning emerged from a housing institution.

8.1.5 Using financialised housing can be an effective strategy to steer urban development

The overall hypothesis underpinning these research questions was that using financialised housing can be an effective strategy to steer urban development. The findings mentioned above all add up to confirm this assumption. This is particularly true for contexts where urbanisation has been driven by financialised housing processes and where there is weak implementation of urban planning strategies. Yet, as discussed in this thesis, the use of housing policies as urban planning could also bring negative externalities, like a shift in the housing market toward upper segments that could compromise the production of low-income housing and pose the risk of overriding local competencies around urban planning.

This review of the research assumptions and key findings raises underlying questions about the interaction between market and regulation, the techno-politics behind how that interaction materialises in space and the different sources of innovation in spatial planning. These are important concepts to consider when using housing as a planning tool. If these components had been more carefully considered in the conception and implementation of the UCPs, the policy could have had the potential to improve access to services and employment sources for a larger share of households. For the policy to be truly equitable and inclusive, however, it would need

to ensure the same conditions for the poorest sector of the population, which is not sufficiently represented by the current housing policies.

8.2 Conceptual contribution: Responding to urbanisation with peripheral planning

Besides the specific contributions made by the aforementioned findings, the more conceptual contribution of my research is in regard to the potential of peripheral planning to encompass recent transformations in urbanisation processes. Drawing on the case of the UCPs, in Chapter 2 I introduced the term 'peripheral planning' to respond to what Teresa Caldeira (2017, p. 4) has defined as 'peripheral urbanization'. Reading the UCPs as peripheral planning highlighted several features in the empirical findings, which emerged while looking at the policy's origins and its effectiveness and impacts on housing development and urban planning. The features identified included a different understanding of the temporality and heterogeneity of urbanisation processes, which encompassed transversal interactions between actors and the creation of new modes of politics around urban planning (Caldeira 2017; Table 2.1 and Table 2.2).

8.2.1 Responding to the temporality of urbanisation processes

Peripheral urbanisation processes respond to different temporalities, whether slow and incremental as in irregular settlements or, more recently, fast as in financialised housing (Caldeira 2017). Often based on a static snapshot of urbanisation, conventional planning instruments have failed to represent the temporality of these processes accurately. The methodology for the definition of the UCP zones involves the latest official data and technical advancements that help them provide a more up-to-date representation of the different temporalities of urbanisation processes. At the same time, as a consequence of this flexible and ever-changing methodology, the UCPs have been subject to the negotiation of the rules for their definition where transversal interactions have taken place primarily between private developers and federal institutions (see below). Yet the inclusion of different temporalities of urbanisation in the UCPs is precisely what has attracted some local governments to use them actively as part of their planning processes, as in the case of Tecámac where the customised version of the UCPs was able to incorporate both present and future urbanisation patterns.

8.2.2 Responding to the heterogeneity of urbanisation processes

The different temporal character of urbanisation processes produces a heterogeneous landscape which, at least as regards residential development, ranges from formal financialised housing (focused on different income segments) to irregular settlements (with different shades of legality and degrees of urban consolidation). At first sight, the methodology of the UCPs seems to have the potential to blur the boundaries between these types of development, since criteria such as proximity to employment or access to basic services apply to both irregular settlements and financialised housing. Findings have shown, however, that the heterogeneity of urbanisation continues to limit the policy's ability to steer urbanisation processes with the current tools available (i.e. subsidies for low-income housing). That is, the relevance and potential effectiveness of the policy varies according to: the different housing market segments (low-income or mid- and high-income housing), the development's location in relation to the centre or the periphery, and the type of development (whether financialised housing, irregular settlements, or different types of land use). As we have seen, the UCPs have managed to exert direct influence only on the location of low-income income housing located in the peripheries, while they may have indirectly pushed developers to shift their housing market focus towards upper-income segments. This poses the risk of reproducing the very social inequalities that the financialised housing model was supposed to tackle in the first place. The influence of the UCPs on irregular settlements was not addressed in this research. Based on the logic of housing development, where developers had a clear preference for developing non-urban areas adjacent to existing housing developments, we may assume nevertheless that irregular settlements would follow a similar logic and favour locations adjacent to existing developments (see Connolly 2019; Varley and Salazar 2021). We could cautiously say that, in steering urbanisation processes driven by financialised housing, the UCPs could potentially influence the location of irregular settlements.

8.2.3 Transforming interactions behind urbanisation processes

Behind the temporality and heterogeneity of urbanisation processes, there are a series of transversal interactions between different actors who inhabit, build, plan or finance housing projects. These interactions are shaped by regulations and institutional structures that define who *can* access finance (whether purchasers, benefiting from subsidies and mortgages, or developers). The UCPs represent a new layer of regulation that has created new power brokers who determine the winners and losers in the development process, which has shifted the power

relations between actors and institutions already involved in this process. The implementation of the UCPs had therefore major implications for new and existing governance structures. This has been evident from early on, when the power relations between and within different institutions changed. In the case of CONAVI, for example, even with the power to define the UCPs its role remained subordinate to that of SEDATU. Even though the policy implies an attempt to link housing and planning, the power dynamics within each ministry have played an important role in the definition of the UCPs, exemplified by the contrasting perception between top-rank and technical personnel in CONAVI regarding what the modifications on the UCP zones implied for the policy's effectiveness. At the same time, new interactions have emerged between financial actors and the federal institutions defining the UCP policy (e.g. banks and other federal financial institutions interacting with CONAVI to verify the potential viability of future projects). Despite these new interactions, however, significant gaps have persisted—most notably between federal and local governments, as the incomplete decentralisation process emphasised the subordination of municipalities to the upper levels of government. This emphasises the legacies of Mexico as a largely federalist country, where municipalities are still dependent politically, fiscally and administratively on the federal government (Meza *et al.* 2019).

8.2.4 Introducing new modes of politics in urbanisation processes

Finally, new modes of politics were observed within these transversal interactions in urbanisation processes. While the shortcomings of peripheral urbanisation processes have often pushed dissatisfied residents to make demands on the state (or on the developer, as in the case of financialised housing, or on both) for the provision of basic services that are absent or inadequate, peripheral planning facilitated political dynamics at a variety of scales. At the federal level, the UCPs have been used by the federal government as a tool to regain trust in the housing construction industry, both on the part of the general public, but, also on the part of the international financial institutions that were worried about the cracks in the housing model that contributed to the failure of some of the largest firms. By implementing the UCPs, the federal government sought to align Mexico with the 'best practices' of sustainable development that had been praised internationally. At the same time, as we have seen, the flexible methodology behind the algorithm that defined the UCP zones and the negotiations behind the definition of their boundaries highlight the important role of techno-politics in urban planning. At the local level, the adoption of the UCPs as a supplementary planning instrument,

like in the case of Tecámac, seems to have required specific political conditions. These include party alignment across different levels of government, long-term continuity of administrations and/or new policies favouring staffing continuities in senior posts and the presence of key actors actively promoting innovation in urban planning.

8.2.5 Broader contributions of peripheral planning

To fully understand, then, how a policy like the UCPs was able to represent and address peripheral urbanisation patterns, it is useful to think in terms of their temporality and heterogeneity as well as the different sets of interactions and the modes of politics involved in their definition and implementation. Peripheral planning has made evident the power of an accurate representation of urbanisation processes (regarding the temporalities and/or the heterogeneity of urbanisation) which affected how knowledge—and in some cases, ignorance—was produced around urban planning. In addition, alternative governance structures in peripheral planning have allowed more flexibility than the traditional institutional architecture and hierarchical government structures of urban planning where new actors, including policy entrepreneurs, take a leading role in adopting innovative approaches to planning.

The case of the UCPs highlighted an important gap in the possibility of creating new modes of politics emerging from civil society, which could open new advocacy paths seeking to ensure housing equality and spatial justice. This does not mean, however, that further conceptualisations of peripheral planning will continue to ignore them. In fact, instead of radical alternatives to the current development and housing model, peripheral planning may offer the opportunity of 'rolling-with-it' and of using this opportunity to achieve broader social equity goals.

The overall link between all these potential contributions of peripheral planning revolves around urban governance and how new ways of thinking around urban planning from the global south can contribute to broader, global, conceptual discussions.

8.3 Policy implications

Besides these conceptual contributions, this research makes a series of contributions to public policy in the fields of both housing and urban planning.

8.3.1 Housing and urban planning policy need to be integrated

From this assessment of using housing as an urban planning tool, one can certainly conclude the importance of integrating their policy strategies. On the one hand, urban planning instruments that disregard housing have led to obsolete plans, mainly because of the mismatch between the time involved in housing and the urbanisation process, which local plans do not represent accurately. Most plans are therefore far from reflecting current urbanisation patterns, let alone the future ones. On the other hand, housing policies detached from urban planning have led to uncontrolled urbanisation patterns in and beyond the urban periphery, enhancing current socio-spatial inequalities.

We should therefore ensure that both housing and urban planning are integrated so that access to housing and to an adequate built environment are compatible. I argue that the UCPs can offer this link between planning and housing, first by defining desired urbanisation patterns and second by responding to the drivers causing urbanisation to follow those patterns—at least in regard to urbanisation caused by financialised housing. Despite the ever-changing methodology and the lack of engagement with local governments over the definition of the UCP zones, the policy has demonstrated the potential to steer new development associated with financialised low-income housing to the pre-defined locations. This approach means that understanding the financial processes behind housing, and using them to implement urban strategies, can help in contexts where planning remains, at best, at an arm's length from the reality.

8.3.2 The role of knowledge and technology in decision-making processes

While I was tracking down the origins and implementation of the UCPs, it became evident just how important the roles played by knowledge and technology are to policy making. Knowledge about the precise location of private land reserves was only collected by the government as part of the reforms that included the creation of the UCPs, through the National Land Register (RENARET) (see Chapter 4). Having access to this otherwise undisclosed information allowed federal policy makers to create the most complete land registry dataset that could inform decision-making processes around housing and urban planning. Access to this data, however, also implied that the UCP subsidy zones were subject to adjustments that ensured a certain quota of private land reserves would be eligible for subsidies, an attempt to minimise the impacts of the policy on the housing construction industry. At the municipal level, the UCPs provided updated information on the current urbanisation patterns of municipalities. This also

proved to be valuable knowledge for some municipalities, which otherwise invested considerable energy and resources in creating an initial assessment of the degree of urbanisation in their municipalities, a base from which they can define their urban development plans. In addition, as the UCPs provide information at a metropolitan or urban agglomeration scale, they could facilitate intermunicipal coordination.

Technology also played an important role in the creation of the UCPs. Abstraction of urbanisation processes to the most minimal essence (access to jobs and proximity to services) implied the creation of algorithms that assessed sociodemographic and spatial data to determine the most suitable zones for social housing. Achieving this task on such a large scale (i.e. across 384 cities) would have been impossible had the UCPs missed an important technical component. We should remember, however, that these algorithms still require considerable revision in order to capture the diverse levels of urbanisation across the country in a more accurate and reliable manner. After all, the current definition of UCPs shows great variation in the quality of the built environment between zones classified under the same category (see for example the contrasting characteristics of land classified as Zone 1 in Figure 4.3).

The UCPs also provided information about urbanisation patterns created using technological skills that are often missing from the municipalities. Unlike most local urban development plans, the UCPs can be publicly accessed (including their most recent versions). The formats available for the UCPs (.kmz and .shp) allow their visualisation by both expert and non-expert users. This fact makes the UCPs easy to access for different stakeholders—including federal officials and private developers—and may therefore help them make informed decisions about future land reserves purchases, infrastructure investment projects or strategic distribution of amenities and services.

8.3.3 Flexible governance structures

A key requisite for policy implementation is to have governance structures in place to ensure the alignment of the policies in question between different levels of government. While decentralised structures can improve urban governance, in some cases additional flexibility in these structures is needed to foster innovation in policy creation and implementation. This was clear from my assessment of the UCPs. Since they originate from federal government but affect local urban development, this could pose the risk of overriding local planning competencies. In contexts where incomplete decentralisation processes have not fully allowed adequate policy

implementation, however, it is sometimes necessary for the federal government to interfere in pursuit of a broader national development goal. By being non-restrictive (in other words, optional for those who want to pursue federal subsidies), the UCPs retained the flexibility to allow municipalities to choose whether or not to adopt them as supplementary planning instruments.

All these contributions highlight the relevance of the UCPs as a policy and justify why they merit more research to establish the potential of using financialised housing to steer urban development.

8.4 Further research

This research opens many possible paths to be explored by future research. In particular, more research could be conducted on the overall impact of the UCPs on urbanisation processes across Mexico. A systematic analysis of a larger sample of cities may provide a more comprehensive assessment of the policy and its ability to influence urban planning. There is at present only one other documented case in Guanajuato, where the UCPs have also been used as a complementary planning instrument (Martínez 2018). In addition, more empirical evidence is needed to understand the perception of the UCPs within the current administration of President Andrés Manuel López Obrador (commonly known as AMLO). Despite coming from an opposition party, AMLO's administration has decided to keep the UCPs in place for the time being. Although the UCPs seem to have been kept under the radar and the administration has not updated the UCP zones, the fact that the policy has not been cancelled may imply their acknowledgement that it has worked to a certain degree, or at least that they are yet to find a better alternative.

The UCPs could also be analysed from an urban economic perspective in relation to variations in land prices. It is common for urban contention policies to have an impact on land prices (Dawkins and Nelson 2002), thus it would only be logical that the UCPs may also have influenced the availability of low-cost land within the boundaries. This was considered as one possible focus for my research, but due to my lack of familiarity with appropriate research methods to establish land price variations reliably, I chose not to follow this path. Besides land prices, further research could focus on the impact of the UCPs on different land tenure modalities, particularly focusing on ejido land, which is likely to have been affected by the UCPs promoting growth on non-urban land.

In my assessment of the policy's ability to contain urban expansion, I focused on the type of development associated with the UCPs: social housing developments. As demonstrated in Chapter 5, however, recent growth in the built-up area in the Metropolitan Area of Mexico City was not associated with social housing, but with a different type of development, which could be non-residential land uses or irregular settlements. An important avenue of future research would therefore be to differentiate these types of land use in this newly built-up area and to assess whether the UCPs may be indirectly promoting a different type of urbanisation. For example, if the production of social housing decreases as an effect of the UCPs, the low-income population would need to find other means of accommodation. Left without many options, this group would likely resort to irregular settlements to fulfil their housing needs.

In addition, more research should be undertaken to investigate the existence of similar cases of the use of financialised housing to implement urban planning in different contexts. A comparative analysis could help with broader conceptualisations of the urban phenomenon of interest, which could help us develop theorisations from non-Western contexts (Robinson 2016). An obvious start would be to expand this study to other countries in Latin America, where similar social housing models have been adopted and, in the case of Chile for example, similar subsidy policies have been put in place (Hidalgo *et al.* 2021). The comparison could also be expanded to sub-Saharan African countries like South Africa where the financialised housing model has also been adopted. A less obvious yet relevant comparison would be to include countries in the global north, like the UK or the Netherlands. In these contexts, both affordable or social housing policies and urban planning appear to contrast with Mexico's case, but the issue of access to adequate, well-located and affordable housing resonates across these contexts. A comparison between the complex governance structures and political economic processes behind housing production and urbanisation processes in each country may offer relevant points for reflection.

Finally, research should continue to focus on the link between housing and planning, which is often taken for granted. As I hope to have demonstrated, there is great potential to improve both housing and urban planning policies simply by 'thinking them together', outside the box.

Appendix A: List of interviews

Category	Nr	Organisation	Type of institution	Position
Federal government officials	7	National Housing Commission	Subsidy provider	Former General Directors, Land, Infrastructure and Sustainability Director, Subdirector and technician
	2	INFONAVIT	Finance provider	Manager of housing recovery and market intelligence
	5	RUV	Information platform	Former and current General Director, Data manager, GIS executive
	2	SHF	Finance provider	Market and development deputy director, advisor
Local government officials	1	Huehuetoca	Public	Urban development deputy director
	3	Zumpango	Public	Urban development representative, supervisors
	4	Tecámac	Public	Technical secretary, chief of urban planning and information, technician
Private housing developers	1	ARA	Housing developer	Innovation and sustainability director
	1	Sadasi	Housing developer	Chief financial manager
	1	GEO	Housing developer	Chief consultant
	1	Vinte	Housing developer	CEO
	1	Vitalia	Housing developer	Consultant
	1	National CANADEVI	Federal Chamber of Commerce	National President
	1	CANADEVI Valle de Mexico	Local Chamber of Commerce	President of the Metropolitan Area of Mexico City fraction
Real estate financial advisors	1	Softec	Consultancy firm	Director
	1	Afin	Consultancy firm	Director
Academia and NGOs	1	CentroGeo	Public research institution	Researcher
	1	Lincoln Institute/ UNAM	Academic institution	Independent researcher and lecturer
	1	Women's Housing Construction Association (MULIV)	Housing development NGO	Founding member/journalist
Total	36			

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