Growing shrinking cities
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ABSTRACT
Shrinking cities have been touted as an opportunity to rethink unsustainable growth-centric policies, but to what extent have they abdicated from the pro-growth urban agenda? We explore one of the most overtly growth-oriented ‘solutions’ to urban shrinkage: housing construction. Our nationwide analysis of Spanish cities illustrates the widespread emergence of shrinking cities following the Great Recession and the disconnect between population and housing dynamics. Our findings highlight the continued demographic decline of Spanish shrinking cities despite considerable spatial growth. This depiction of growing shrinking cities expands conceptualizations of urban shrinkage and advances discussions regarding the growth imperative in planning cultures.

KEYWORDS
shrinking cities; demographic change; pro-growth policy; regional disparities

INTRODUCTION
Shrinking cities have been highlighted as a chance to think about smaller cities with smaller footprints and to eschew the growth-at-all-costs mantra that has defined urbanization in the 21st century. Whether it is socially just smart decline (Hollander, 2011) or fully fledged degrowth (Kallis, 2018), scholars, activists, media pundits and even some practitioners have called for shrinking cities to accept and celebrate their smaller size rather than blindly pursue growth (Hollander et al., 2009). And while there may be some sustainable practices emerging in shrinking cities (Pallagst et al., 2017), empirical enquiry has largely demonstrated that the post-growth epiphany has failed to materialize (Hackworth, 2015). The neoliberal growth machine, which reinforces territorial stigma (Audirac, 2018) and facilitates planned decline (Hackworth, 2019), is more entrenched than ever in many shrinking cities.

In this study we explore one of the most overtly growth-oriented ‘solutions’ to urban shrinkage: housing construction. The notion that the physical growth of a city will result in demographic growth is plausible in a quickly growing city with a tight housing market. Building a slew of new housing in Guangzhou or San Francisco may result in population growth, but in shrinking cities the logic breaks down (Wiechmann, 2008). Shrinking cities, especially those within shrinking regions, often already have a surplus of housing (Rink et al., 2012). Targeted programmes for affordable and social housing are needed, but market-rate growth for the sake of growth is an expensive and precarious approach that serves to benefit a small number of, likely non-local, individuals and firms at the expense of local residents. Superfluous residential development can also have considerable regional, national and, as evidenced by the Great Recession of 2008, global ramifications.

Our nationwide analysis of Spanish cities aligns with the hypothesis that a growth imperative is fundamentally embedded in planning cultures. During the real estate bubble of the 2000s, housing provision in Spain was untethered from demographic trajectories, even in the most extreme cases of long-term depopulation. In the last three decades, Spanish demographic and housing dynamics have experienced profound transformations. Spain’s economy and population boomed in the 2000s thanks to the prosperity of the construction and real estate sectors. Between 2001 and 2011, Spain gained more than 6 million inhabitants (from 40 to 46 million) – a major feat for a country with one of the lowest fertility rates in Europe (Eurostat, 2019). During the same period, housing grew at a faster pace than both population and households. Over 4 million new housing units were built, thereby...
increasing the country’s total housing stock by 21% (Instituto Nacional de Estadística (Spanish National Statistics Institute – INE), 2011). More than one-quarter (28%) of the Spanish housing stock was either vacant or used seasonally before the global economic crisis, the bursting of the real estate bubble, and the subsequent demographic decline. Spain reached its population peak in 2012 with more than 47 million inhabitants and has oscillated between population decline and stabilization ever since.

The impacts of Spain’s economic boom and subsequent crisis have been thoroughly examined (Akin et al., 2014; Romero et al., 2012), but in this body of literature the perspective of urban shrinkage is paradoxically absent (Fernandez & Cunningham, 2018). Although there is a wide literature on the disparity between population, household and housing dynamics (Haase et al., 2013), research on the impacts of bubble economies aggravating this mismatch is scarce. The Spanish context demonstrates the disparity in sharp relief as, like many Southern European countries, Spain was highly impacted by the Great Recession of 2008.

We posit that the long-term dynamics of both national and urban population growth have eclipsed the urban shrinkage discourse, despite the major impacts of the recent economic transformations on the prevalence of Spanish shrinking cities. Hence, our first objective is to provide an up-to-date picture of the geographical patterns and incidence of Spanish shrinking processes in order to better understand the repercussions of the crisis and out-migration. Through this macro-analysis, we aim to draw attention to these hidden processes in what has been for a long time a growing country.

Second, we explore the complex relationships between demographic and housing dynamics in shrinking, stagnant and growing Spanish cities. In the context of the real estate bubble, both population and housing grew, but seem to have done so in a disconnected way. By comparing demographic and housing data, we explore the hypothesis that housing construction largely exceeded population and social needs (García, 2010; Romero et al., 2012). Within the wider context of national population and housing growth, what are the specific trajectories of shrinking cities? What is the relationship between housing and population change? Are the geographies of population and housing change distinct or convergent? By answering these questions, we position urban shrinkage as a product of a more general process of uneven development at various scales (Smith, 2008).

Through our empirical exploration of the relationship between population and housing change in Spanish shrinking cities, we advance the global debate on the diversity of shrinking experiences (Haase et al., 2016; Hartt, 2018a). Urban shrinkage is often associated with spatial contraction and urban decay (Audirac, 2018), but can demographic shrinkage coexist with spatial growth? Previous research has shown that population shrinkage and economic decline are not synonymous processes (Hartt, 2018b; Weaver et al., 2017), therefore we ask: If shrinking cities can prosper, can they also physically grow? Our study of growing shrinking Spanish cities supports Pallagst’s (2010) assertion of the precariousness of ubiquitous pro-growth strategies and contributes to a better understanding of the spatially uneven compounding impact of the Great Recession on already shrinking cities.

SHRINKING CITIES

Since the turn of the millennium, urban shrinkage has increasingly gained the attention of both scholars and policymakers (Hollander et al., 2009; Martinez-Fernandez et al., 2016). Although there are a variety of conceptual and operational definitions of ‘shrinkage’ in the literature (Hartt, 2021), population loss is central to every definition. At the most fundamental level, shrinking cities are those that have lost population over time (our precise operational definition is outlined in the research design section below). Urban shrinkage has been identified as a dominant trend in both Europe (Wolf & Wiechmann, 2018) and the United States (Hartt, 2019). The shrinking cities literature challenges the ubiquity of the growth paradigm in planning cultures, but academic studies have mainly focused on population and socioeconomic dynamics and policy action. Research on the spatial patterns of shrinkage is limited in comparison (Reis et al., 2016; Weaver et al., 2017; Wolf et al., 2018).

In contrast to the emerging body of literature in the United States and Germany, research on Spanish shrinking cities is very limited. There have been a few monographic studies on former mining or industrial cities, but research examining the shrinkage phenomenon at a wide spatial or temporal scale is scarce (Sánchez-Moral et al., 2013). Macro-studies on Spanish urban dynamics have mainly focused on the impacts of population changes in the 2000s, where a population surge coinciding with the economic boom and real estate bubble was abruptly followed by the collapse of the Great Recession. These macro-studies have overwhelmingly focused on the demographic evolution of Spanish metropolitan areas (Gil Alonso et al., 2016), paying a particular attention to three key themes: (1) the impacts of the extraordinary spatial expansion and housing construction (Akin et al., 2014; García, 2010); (2) the socioeconomic impacts of the crisis and the resultant increase of socio-spatial disparities (Méndez et al., 2015; Romero et al., 2012); and (3) the intense wave of international immigration during the 2000s and the impacts of outmigration after the crisis (Gil-Alonso et al., 2016). These studies have provided an in-depth analysis on Spanish urban areas since the turn of the century and described a general boom-and-bust trajectory (Gil-Alonso et al., 2016). However, they have not taken into account the specific dynamics of shrinking cities or the patterns of shrinkage in the Spanish urban system.

Examining Spain’s urban population dynamics beyond the last two decades reveals some interesting trends. Between 1950 and 1970, due to rural-to-urban migration, large and medium-sized Spanish cities experienced massive population growth (> 20%), while municipalities with fewer than 20,000 inhabitants generally shrank (Sánchez-Moral et al., 2013). However, population...
growth in large cities started to taper off in the 1970s, while medium-sized cities continued to grow well above the national average. In the 1990s, municipalities with fewer than 20,000 inhabitants began to recover after a long period of shrinkage (1950s–70s) and stagnation (1980s) (Sánchez-Moral et al., 2013). During the 1990s and the 2000s, small municipalities grew faster than the national average. This was largely due to suburbanization within large metropolitan areas (Gil-Alonso et al., 2016; Siedentop & Fina, 2012). In the 2000s, fast national population growth driven by high levels of immigration helped boost the urban core population of metropolitan areas after years of shrinkage. Yet, the fringe suburban areas grew at a much more rapid pace (Bayona-i-Carrasco et al., 2018). More focused research on the recent trajectories of municipalities with fewer than 20,000 inhabitants (whether or not officially considered ‘cities’) is needed in order to elucidate the drivers and granular geography of population change.

It is important to highlight that these trajectories occurred in a long-term context of national population growth. In comparative European studies, Spain stands out as one of the countries with fast population growth (Turok & Mykhnenko, 2007; Wolff & Wiechmann, 2018). However, Wolff and Wiechmann (2018, p. 5) emphasize that ‘municipalities with population loss are widespread in Europe and can also be found in growing countries’. Following Cunningham-Sabot et al. (2021), we posit that the prevalence of a general context of growth may have eclipsed shrinking cities’ specific issues as well as the recognition of the shrinkage processes in Spain. Until recently Spanish shrinking cities existed within a context of national growth and, much like the French and Canadian context, could be described as a silent or quiet process of shrinkage (Cunningham-Sabot & Fol, 2009; Hartt, 2021). However, the economic and demographic impact of the 2008 crisis and the new context of national population stagnation is reshaping the Spanish urban system (Gil-Alonso et al., 2016). Emigration has increased, the number of households has decreased and Spain now has the second lowest fertility rate in Europe (1.30 live births by woman versus 1.56 in the European Union) (Eurostat, 2019). Taken together, the recent demographic trends paint a picture of an emerging demographic transition. Our research examines the geography and prevalence of shrinking cities and the dynamic relationship between population and housing change across Spain.

**RESEARCH DESIGN**

First, we aim to capture the evolution of urban shrinkage in Spain from 1991 to 2016. Following Wolff and Wiechmann (2018), we used a three-part typology to categorize population change in Spanish municipalities. Municipalities were deemed to be (1) shrinking if they lost >0.15% of their population per year, (2) stagnant if their population change fell between −0.15% per year and 0.15% per year, or (3) growing if their population grew by >0.15% per year.

Cities are defined by the INE as municipalities with a population of at least 10,000. However, the sprawling suburbs of Spanish metropolitan areas are typically made up of municipalities with fewer residents. Unfortunately, data are not available at the metropolitan area level as all INE data correspond to administrative and political boundaries. Therefore, in order to take into account the dynamics of functional economic metropolitan areas and provide insight for future research on the phenomenon of growing suburbs—shrinking central city (Couch et al., 2005), it is necessary to consider municipalities with fewer than 10,000 residents in our research design. As our purpose is to focus on urban, not rural, shrinkage, it is important to define a threshold that captures suburban municipalities while eschewing small rural communities. We expand Sánchez-Moral et al.’s (2013) typology (which follows Turok & Mykhnenko, 2007) to include small municipalities with 1000–20,000 residents. The baseline of 1000 inhabitants allows us to avoid very small villages located in rural areas while still capturing suburban sprawl in shrinking contexts (Nuissel et al., 2007). We use the most prevalent operational definitions of medium cities (20,000–250,000 inhabitants) and large cities (>250,000) in Spain (Ganau & Vilagrasa, 2003).

Second, we aim to explore the relationship between Spanish cities’ demographic trajectories and housing dynamics. Before proceeding, it is necessary to note some particularities. Spaniards have an overwhelming historical preference for homeownership. More than 79% of the Spanish population lives in an owner-occupied dwelling (versus 69% of the European population) (Eurostat, 2018). This trend was amplified during the real estate bubble, which contributed to perceptions of housing as a long-term investment (Garcia, 2010). Long-term mortgages and national urban policies facilitated, as in other countries, house purchasing. In 2004, Spain had the second most housing units completed by inhabitant in Europe (after Ireland), but also the second highest rate of vacant housing (22%, after Cyprus) (Federcasa, 2006). However, the high rates of Spanish construction may be influenced by Spanish governance and regulatory systems (Siedentop & Fina, 2012). The Spanish local tax system may be particularly influential, as local tax on real estate and immovable property (impuesto sobre bienes inmuebles) is one of the main sources of income of Spanish municipalities. Owners are obliged to pay an annual tax based on the assessed value of the property (whether primary, secondary or vacant). Municipalities struggling with tight budgets may be supportive of strategies aiming to attract not only new inhabitants but also secondary housing. Spanish municipalities have a financial incentive to foster further physical growth – even if newly constructed housing sits vacant. Therefore, our study considers vacant housing (a common indicator in shrinking cities research), as well as secondary housing and total housing.

**Data sources**

Our research is based on two main data sets. In order to better understand the trajectories of Spanish municipalities before the 2000s’ real estate bubble, we compare
demographic and housing data from the last three censuses (1991, 2001 and 2011). However, in 2011, the demographic impacts of the bursting of the housing bubble were not very apparent. In order to capture these dynamics, we examine annual population registers (padrón de población) from 1991 to 2016. Although registers only provide general demographic data, it allows us – in the absence of the next 2021 census – to better comprehend the impact of real estate bubbles and the 2008 economic crisis on population dynamics.

The remainder of the paper is structured as follows. In the next section, we examine urban population dynamics by city size between 1991 and 2016. In the third section, we highlight the uneven geographical impacts of demographic change across the Spanish urban system. In the final section, we explore the relationship between population and housing dynamics.

THREE STAGES OF SPANISH URBAN POPULATION CHANGE

The number and proportion of shrinking, stagnant and growing municipalities in five-year intervals is detailed in Figure 1 (for additional details, see Appendix A in the supplemental data online). It shows, on the one hand, considerable urban population growth in the 2000s during the Spanish economic boom. On the other hand, it shows the upheaval of the Spanish urban system as shrinking cities emerged as a major trend in the 2011–16 interval following the global crisis.

The population change of Spanish municipalities between 1991 and 2016 can be viewed as three distinct time periods:

A general context of growth, 1991–2006
Urban growth characterized Spain from the 1950s to the early 2000s (Sánchez-Moral et al., 2013). The first period of our study is therefore embedded in this historical trend. The national population grew by 2.4% between 1991 and 1996, by 2.2% between 1996 and 2001, and by 8.2% between 2001 and 2006. Between 1991 and 2006, the number of growing cities increased and the number of stagnant and shrinking cities decreased. Yet, the comparison of the proportion of each city type across five-year time intervals provides an important context to the overarching dynamics. First, we observe an episodic period of stagnation of urban growth between 1996 and 2001. Urban growth slowed during this short interval, then dramatically expanded between 2001 and 2006. This was the period of greatest urban growth and the peak number of growing cities (1986) – all within a context of exceptional national population growth. Second, regarding city types, we observe a general population increase in large growing cities. Yet, the increase in medium and small growing cities (and the decrease in medium and small shrinking cities) is even more noticeable. This trend could be related to a general strengthening of Spanish medium-sized cities and regional capitals, or to the effects of suburbanization (Gil-Alonso et al., 2016).

Emerging trends in a context of national population growth, 2006–11
The five-year interval from 2006 to 2011 constitutes a breaking point in the Spanish historical trend of urban growth. The national population continued to grow but dropped from 8.2% (2001–06) to 6% (2006–11). Despite national population growth, the number of growing municipalities decreased, and the number of shrinking places grew for the first time in decades. Yet, the downward trend is still not very noticeable, especially when compared with the subsequent five-year interval. The decrease is most visible in large and medium cities: 12.5% of large cities shrank compared with none in the previous five-year interval, and 6.5% of medium cities shrank compared

Figure 1. Proportion of shrinking, stagnant and growing municipalities, 1991–2016.
with only 5.5% in the previous interval. We observe a different phenomenon in small municipalities. The number of small shrinking municipalities decreased from 741 in 2001–06 to 714 in 2006–11. In general terms, these results point to the first effects of the global economic crisis and the bursting of the Spanish real-estate bubble. A period of relative urban stagnation seems to have preceded the subsequent downward trend.

The reversal of a long-term growth trend, 2011–16

The period 2011–16 saw the national population shrink by 0.5%. Figure 1 shows the major urban population changes following the crisis. While only 25% of the municipalities in our data set were shrinking in 2006–11, 68% shrank in the next five-year interval. The analysis by city type reveals the strong shifts in large cities. No large cities grew during this period and the percentage of shrinking large cities increased from 13% in 2006–11 to 63%. Small communities were impacted as well: the percentage shrinking increased from 28% during the first five-year interval to 72% in 2011–16. Finally, the percentage of medium shrinking cities also increased. However, compared with the other city types, medium-sized cities seem to have better weathered the transformations. In fact, 39% of medium-sized cities still grew between 2011 and 2016.

In summary, the demographic analysis shows the extent to which the Great Recession and the bursting of the real estate bubble coincided with the reversal of both national and urban population growths. In October 2018, after a slight increase in the total population in 2017, the INE estimated that a recovery was probable in the next few years due to positive migratory balance. It projected that Spain will have over 49 million inhabitants by 2033. The most recent report (2020) postpones this gap to the 2040s. The dynamics of the next few years will reveal if population shrinkage was episodic and exclusively linked to the global economic crisis or if it is a more durable process. Changing geopolitical and global health conditions, such as Brexit and the COVID-19 pandemic, will likely influence Spanish population dynamics as well. While Spain has been highly affected by COVID-19, it is too early to tell if the pandemic and the associated economic fallout will compound ongoing shrinkage processes, trigger a movement away from urban centres or instigate new unexpected demographic changes.

THE UNEVEN GEOGRAPHY OF POPULATION CHANGE

In this section and the next we focus on the period 1991–2011 as the decennial census data allows us to compare population and housing dynamics. Even though Spain was still a growing country during the 1991–2011 period, there were already distinctly uneven patterns of growth and shrinkage across the country. Applying the population change typology to the census-based data set, we find that between 1991 and 2011, there were 1768 growing municipalities, 253 stagnant municipalities and 934 shrinking municipalities. Shrinkage is widespread (35%) in small municipalities. Yet, this result requires contextual grounding because it is shaped by our operational definition of a small place. Including municipalities of at least 1000 inhabitants allows us to take into account the influence of metropolitan dynamics in urban shrinkage, but may also capture more isolated, non-suburban, places. Nevertheless, small municipalities still seem to have experienced shrinkage more often than the other city types. A total of 30% of large cities either shrunk or stagnated between 1991 and 2011. The vast majority (89%) of medium-sized cities increased their population during this period. This result seems to confirm the renewed role of Spanish medium-sized cities as a hinge between the large metropolitan and rural areas (Ganau & Vilagrasa, 2003).

Mapping population changes between 1991 and 2011 (Figure 2) demonstrates distinct regional disparities. The geographical distribution of population growth and shrinkage is highly uneven. Population growth was particularly concentrated around Madrid and the coastal areas. The capital’s region reinforced its centrality in terms of population (from 12.7% of the Spanish population in 1991 to 13.7% in 2011). Yet, Figure 2 shows that Madrid’s area of influence extended beyond the administrative region to the small municipalities of the adjacent provinces. Within a 150 km radius of Madrid, 85% of municipalities grew, 5% stagnated and 10% shrank.

The majority of cities of the East Mediterranean regions (Valencia, Murcia) increased in population during this period, except for some small and medium-priced interior shrinking municipalities. In the northern Mediterranean, most Catalanian cities increased their population, particularly on the coast. Yet, we observe a combination of large and medium shrinking cities and small growing places, a pattern that can also be observed in the Basque Region (north Spain).

Furthermore, the regions of the northern (Cantabria) and southern (Andalusia) coasts show a deep contrast between growing coastal municipalities (whether large, medium or small) and interior shrinking ones. Figure 2 shows that shrinking areas are to a large extent located in central Spain, but follow different patterns. The southern regions of Extremadura and Castilla la Mancha combine growing large and medium cities and isolated shrinking or stagnating small communities. Conversely, in the northern region of Castilla Leon, we observe two different processes: large shrinking cities surrounded by growing small suburban communities, and isolated shrinking small places.

Finally, the shrinkage processes of the north-western region of Galicia appear as an exception largely because of its peculiar spatial organization. Unlike the other Spanish regions, in Galicia rural settlements are historically in very close proximity to one another. The widespread shrinkage observed in the north-west (Figure 2) actually corresponds to small and largely isolated communities. Conversely, two growth poles appear around the coastal cities of La Coruña and Vigo/Pontevedra. Finally, the former mining region of Asturias in the north-west is largely
shrinking with the exception of the regional capital Oviedo and its suburban communities.

**THE RELATIONSHIP BETWEEN HOUSING AND POPULATION DYNAMICS**

Following the population analysis, we focus on housing changes in shrinking cities. The literature on urban shrinkage often considers the increase of vacant housing as a consequence of population loss (Hollander et al., 2009). Yet, vacant housing growth can also be a sign of an increase in building permits and construction. A number of case studies have shown that local decision-makers and planners often implement growth-oriented strategies in shrinking cities (Hartt & Warkentin, 2017). Moreover, new housing construction is often considered as a means to revitalize the local economy, attract well-educated individuals and prevent suburban flight. Yet, the effects are not always as expected and shrinking cities often continue losing their population (Wiechmann, 2008). Housing construction on the periphery can trigger suburban flight and exacerbate central city shrinkage, as evidenced by concurrent issues of sprawl and shrinkage in European metropolitan areas (Nuissl et al., 2007) and the United States (Weaver et al., 2017). By examining census data from 1991 to 2011, our purpose is to explore the relationship between population and housing change in the Spanish context.

Before turning to the population and housing analysis, it is worthwhile to reflect on population as a variable for shrinkage within the context of housing. Although population is the accepted dependent variable in shrinking cities research, it does not always tell the entire story when examining housing dynamics. Cities that lose population do not inherently require less housing. As Hartt and Hackworth (2020) demonstrate, city population levels can drop without a corresponding negative change in occupied dwelling units as depopulation may simply result from shrinking household sizes. A city that has lost its population could even have a housing shortage if the number of households had increased. However, this is generally not the case in the Spanish context. Unlike the American cities examined by Hartt and Hackworth, the change in the number of households corresponds very closely with population change in Spanish municipalities. Examining our data set, we find that between 1991 and 2011 there is an almost perfectly positive linear correlation (Pearson $r = 0.968$, $p \leq 0.001$) between population and household change. Although household change dynamics were more subdued than population change (some cities with shrinking populations had stagnating household change), the relationship of both variables with respect to housing was consistent – especially in the shrinking context. Overbuilding of the housing stock was apparent in both shrinking population and shrinking household cities. Between 1991 and 2011, the housing stock increased in 74% of
shrinking household cities and 86% of shrinking population cities. In keeping with shrinking cities research, we will focus the remainder of our analysis on population change as the key shrinkage variable.

**Statistical analysis of population and housing dynamics**

A series of Kruskal–Wallis tests was used to determine whether there is a difference between the change in the population and housing in shrinking, stagnant and growing municipalities. Table 1 demonstrates that there is a statistically significant difference in population change between the three types of municipalities. Although we found a significantly higher change in housing in growing municipalities, on average, shrinking municipalities still continued to grow with regard to housing, despite losing population. This was especially true for the proportion of secondary houses, which, on average, was much higher in shrinking municipalities than stagnant or growing municipalities.

A closer examination of housing changes in shrinking municipalities supports this seemingly contradictory finding. There appears to be a disconnect between population and housing change. The majority of municipalities that shrank demographically also grew in terms of housing. Between 1991 and 2011, 86% of shrinking Spanish municipalities grew in housing—several growing by 60% or more. In stark contrast, housing shrinkage outpaced population shrinkage in only 10 of 934 municipalities.

The exceptional increase in the number of houses certainly needs to be couched within the Spanish real-estate bubble. Yet, even in this context, the contradictory population and housing dynamics of Spanish shrinking cities is consistent with the argument that growth was the dominant paradigm for powerful economic actors as well as local decision-makers and planners. The Spanish legal framework establishes that every urban development, whether public or private, must have its own detailed plan (plan parcial) that follows the guidelines (density, uses, number of houses, etc.) of the overall plan. Any increase in housing is therefore linked to planning.

Promoted by changes in land use and planning legislation in the late 1990s and early 2000s, which became more permissive to market forces, as well as favourable mortgage conditions, urban development (particularly housing developments) emerged as a major resource for municipalities (supported by a favourable tax system). These new developments were intended not only to attract new residents, but also to build secondary housing to attract a seasonal population which would reinforce local economies (especially in coastal areas). For many powerful economic actors and local decision-makers, housing construction and spatial growth was a precondition of economic growth (Romero et al., 2012). Yet, in the process, housing may have become increasingly disconnected from both population dynamics and sustainable urban models.

The vast majority of the municipalities that shrank between 1991 and 2011 (86%) increased their housing stock. However, housing growth was not followed by a subsequent growth in population. Examining the annual population registers between 2011 and 2016 reveals that only 29 of the 805 shrinking Spanish municipalities that grew in terms of housing between 1991 and 2011 saw a positive population change in the following five years. Although these dynamics need to be considered within the context of population flight following the economic crisis, within the Spanish context, building additional housing was not followed by population growth. The remarkable increase in housing between 1991 and 2011 is consistent with the argument that, as in many other countries (Hartt & Warkentin, 2017), Spanish urban actors are largely convinced of the need for a ‘going for growth’ strategy (Wiechmann, 2008) even in shrinking cities.

**Linking population and housing change**

In order to examine both the change in population and housing and explore the relationship between the two variables, as well as its geographical distribution, Figure 3 depicts change in population per house between 1991 and 2011. Once again, we apply Wolff and Wiechmann’s (2018) three-part typology to distinguish between

### Table 1. Kruskal–Wallis tests examining the differences in population, housing, secondary housing and vacant housing in shrinking, stagnant and growing Spanish municipalities, 1991–2011.

|                       | Growing (n = 1768) | Stagnant (n = 253) | Shrinking (n = 934) | Kruskal–Wallis p-value |
|-----------------------|--------------------|--------------------|---------------------|-----------------------|
| Population change, 1991–2011 | 0.31 | 0.00 | –0.15 | < 0.001 |
| Total housing change, 1991–2011 | 0.54 | 0.29 | 0.16 | < 0.001 |
| Proportion of secondary housing change, 1991–2011 | –0.23 | 0.04 | 0.33 | < 0.001 |
| Proportion of vacant housing change, 1991–2011 | –0.01 | 0.08 | 0.03 | 0.093 |
population per house shrinkage (negative change of \( \geq 0.15\% \) per year), stagnation (change between \(-0.15\%\) and \(0.15\%\) per year), and growth (positive change of \(\geq 0.15\%\) per year).

The overall picture is remarkable. With the exception of some medium-sized and small cities located in Madrid’s region, some municipalities in coastal Mediterranean regions and the Balearic Islands, the vast majority of Spanish municipalities experienced population per house shrinkage. In fact, 86\% (2536 total) of all municipalities in our data set saw their population per house decline. Of the 419 municipalities with stagnant or growth in population per house, only 10 were shrinking cities (as defined by population change alone). A decline in population per house could simply be a result of housing growth to accommodate smaller households. However, as noted above, housing grew in 74\% of cities that experienced a decline in households between 1991 and 2011. These results show that housing growth is more or less pervasive across Spain, and that instances of population change eclipsing housing change are likely the result of quickly growing populations rather than shrinking cities adjusting their housing stock.

Our findings highlight the disconnect between the Spanish population and housing dynamics between 1991 and 2011. According to Romero et al. (2012), in the context of the real estate-driven economic boom, housing construction and, consequently, spatial expansion were considered necessary for economic and population growth. Yet, whereas housing growth was ubiquitous, population growth was geographically concentrated in certain regions and city types. As demonstrated by Figure 2, growing cities were predominantly located around Madrid and on the Mediterranean coast, and medium-sized cities were most likely to experience population growth. These dynamics, together with local planning decisions, characterize Spain’s distinctive shrinking processes that combine, in various degrees, population loss and a vast housing stock. However, the abundance of housing per capita in Spanish cities appears to be linked not only to fast population decline but also rather to a double process of selective population loss and disproportionate housing construction.

Between 1991 and 2011, more than 8 million housing units were built in Spain. While the total housing stock increased by 47\%, vacant housing grew by 39\% (from approximately 2.5 million units to 3.5 million in 2011) and secondary housing by 26\% (from approximately 3 million units to 3.7 million in 2011). The general picture of Spanish housing dynamics, which shows a higher increase in vacant housing than in secondary housing, contrasts with the specific results of the Spanish shrinking municipalities. In fact, shrinking municipalities have higher proportions of secondary housing than of vacant housing. Moreover, Figure 4b shows that places with more population loss had an increase in the proportion of secondary housing.

It is important to note the differences by city type. Shrinking small municipalities have the highest proportion of secondary housing. Conversely, large and medium-sized cities were found to have higher proportions of vacant housing. These results highlight the need for additional research on the relationship between the type of housing and the status of the housing stock.
Further in-depth analysis unpacking the local context of specific case studies could shed light on the planning strategies, processes, and governance structures guiding and motivating secondary housing construction.

Our findings highlight that population loss in Spanish municipalities did not coincide with a decrease in housing, but on the contrary, the housing stock in shrinking municipalities increased considerably. The development of housing barely differed from those of growing cities. In 99% of shrinking cities and 77% of growing cities, population per house declined by >0.15% per year between 1991 and 2011. The double process of population loss and intense housing construction led to even greater divergence between population and housing dynamics in shrinking cities. Together these patterns are consistent with arguments that housing growth is largely considered a precondition for economic and population growth (Hollander, 2011). However, if an increase in housing were intended to attract or retain population, a strategy used by other cities in the past (Wiechmann, 2008), the results were not as expected. A large proportion of housing units was acquired as secondary housing and did not contribute to the stabilizing of the population. Although studies have examined the relevance and persistence of vacant housing in shrinking cities (Newman et al., 2016), secondary housing has rarely been considered a central indicator and its links with population change have barely been explored. Our findings suggest that further investigation is needed and that in certain housing markets, regulated by specific fiscal systems, or in certain contexts (such as places with a potential for tourism or seasonal population), secondary housing can play a central role in shrinking cities.

Figure 5 shows the inverse relationship between housing construction and subsequent population change. The vast majority of the places that increased in housing between 1991 and 2011 continued losing population between 2011 and 2016. Our findings are consistent with the argument that housing construction alone is an ineffective strategy to counter population loss.

CONCLUSIONS

The findings from this study expand existing conceptualizations of urban shrinkage by uncovering a major trend in shrinking city dynamics. Physically expanding, demographically declining cities shed new light on current debates regarding the pervasiveness of pro-growth urban policies, and the evolution of the Spanish and European urban systems. First, regarding population dynamics, this study highlights that the economic crisis coincided with major changes in Spanish urban population dynamics: 68% of the municipalities in our data set lost population between 2011 and 2016. Although not as plain to see, we found that some signs of urban demographic stagnation were already visible during the preceding five-year period (2006–11) despite national population growth. The 2010s constituted a reversal of long-term demographic urban growth in Spain. But as the 2010s period of demographic decline can be seen as potentially linked to the economic crisis, Spain’s urban population dynamics could be viewed as episodic. Yet, the pre-crisis period of stagnation may also suggest that Spain is embedded in a more long-term trend that transcends the economic boom and bust. Spain’s receding urban population growth can also be viewed as a product of the wider, global demographic transition in developed countries, especially since Spain is one of the Europe’s most rapidly ageing countries (Eurostat, 2019).

Our analysis also highlighted the uneven impact of shrinkage in the Spanish urban system. By extending our data set to small places, this study not only shows remarkable regional disparities but also underlines the uneven impacts by city type. Spanish medium-sized cities have been less affected by shrinkage than large cities. This result contrasts with the large body of literature that highlights the agglomeration and clustering effects of large
In Spain, we observe a concentration of population in large and medium-sized cities, but in the former, our results also suggest a simultaneous process of decentralization from the core to the suburban areas and adjacent municipalities leading to central-city shrinkage. These results are consistent with previous analyses of the role of immigration in large metropolitan areas (Gil-Alonso et al., 2016). Finally, our research shows the important impact of shrinkage on small places. However, additional research is needed to unpack this category. Further research could advance our understanding of the context-specific dynamics of small cities and towns—a category which has been identified as the most affected by shrinkage in Europe (Bretagnolle et al., 2019).

Our second group of results explores the complex relationship between population and housing dynamics, particularly in shrinking contexts. Unlike in other international cases, Spanish shrinking cities did not experience a decline in their housing stock. In fact, the growth in housing was similar across Spanish cities regardless of population trajectory. Our findings are consistent with the argument that housing construction is no longer aimed at satisfying societal needs but has increasingly become a capital good and a strategy for capital accumulation (Aalbers, 2016). The Spanish case reinforces the idea that housing has entered a financialized regime (Aalbers, 2017) and it sheds light on one of the variegated geographies of neoliberalization (Brenner & Theodore, 2008).

In Spain, massive housing construction coupled with a selective process of population loss has led to vastly uneven developments of growth and shrinkage. In highlighting the growing divergence between population and housing dynamics, we contribute to the debate on ‘a pluralist world of urban shrinkage’ (Haase et al., 2016, p. 86) and expand the conceptual scope of urban shrinkage to include spatially growing shrinking cities. If previous research has shown that population loss is not inextricably linked to a decline in quality of life (Hollander, 2011) or to economic decline (Hartt, 2018b), our study points out that demographic shrinkage can coexist with spatial growth.

Although spatial growth and housing construction may be seen by local planners and decisionmakers as drivers and preconditions of economic and population growth, in the majority of Spanish shrinking cities housing construction was not followed by subsequent population growth. Only 3.6% of the shrinking municipalities that grew in terms of housing between 1991 and 2011 saw a positive population change in the following five years. Despite advances in shrinking cities scholarship and best practices, our findings support the hypotheses that the growth paradigm continues to permeate planning cultures (Pallagst, 2010), real estate and market forces continue to promote construction as a means to induce growth (Hollander, 2011), and that demographic realities continue to be overlooked in shrinking cities (Hartt, 2021). Many studies have discussed the risks of pro-growth policies in shrinking cities (Martinez-Fernandez et al., 2016; Hollander et al., 2009). Our nationwide findings support the argument that physical growth alone is not an antidote for population decline. In addition to expanding the conceptual boundaries of urban shrinkage, our exploration of Spanish housing and population dynamics provides a cautionary message to practitioners and policymakers.
regarding construction-based economic development strategies to sustainably reverse economic or population decline. The widespread physical growth of Spanish shrinking cities suggests that just as surely as you cannot dig yourself out of a hole, you cannot build your way out of a shrinking city.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

NOTES

1. The INE defines vacant housing as ‘uninhabited’; http://www.ine.es/censo_accesible/es/glosario.html/.
2. The INE defines secondary housing as temporarily occupied; http://www.ine.es/censo_accesible/es/glosario.html/.
3. The situation on the Mediterranean coast (Comunidad Valenciana and Murcia) has radically changed since 2011. Upon consultation with a local planning practitioner, it was noted that housing in these areas grew considerably following the 2011 census. Moreover, the annual population registers show that all the coastal municipalities in La Nucia declined in population between 2011 and 2016.

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