Article

EUROPEAN URBAN AND REGIONAL STUDIES

European Urban and Regional Studies
2016, Vol. 23(1) 86–102

DOI: 10.1177/0969776413481985
elr.sagepub.com
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Varieties of shrinkage in European cities

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Abstract

The issue of urban shrinkage has become the new 'normal' across Europe: a large number of urban areas find themselves amongst the cities losing population. According to recent studies, almost 42 per cent of all large European cities are currently shrinking. In eastern Europe, shrinking cities have formed the overwhelming majority – here, three out of four cities report a decrease in population. Shrinkage has proved to be a very diverse and complex phenomenon. In our understanding, a considerable and constant loss of population by an urban area classifies it as a shrinking city. So, while the indicator of shrinkage used here is rather simple, the nature of the process and its causes and consequences for the affected urban areas are multifaceted and need to be explained and understood in further detail. Set against this background, the article presents, first, urban shrinkage as both spatially and temporally uneven. Second, this article shows that the causes of urban shrinkage are as varied as they are numerous. We explore the 'pluralist world of urban shrinkage' in the European Union and beyond. The article provides an original process model of urban shrinkage, bringing together its causes, impacts and dynamics, and setting them in the context of locally based urban trajectories. The main argument of this arrticle is that there is no 'grand explanatory heuristics' of shrinkage; a 'one-size-fits-all' explanatory approach to shrinkage cannot deliver. To progress and remain relevant, one ought to move away from outcome-orientated towards process-orientated research on urban shrinkage.

Keywords

Comparative research, Europe, local trajectories, process model, urban shrinkage

Over the last two decades, the development trajectories of Europe's largest cities have become increasingly diverse (Kabisch et al., 2012) (Figure 1). Almost one-third of European cities have enjoyed

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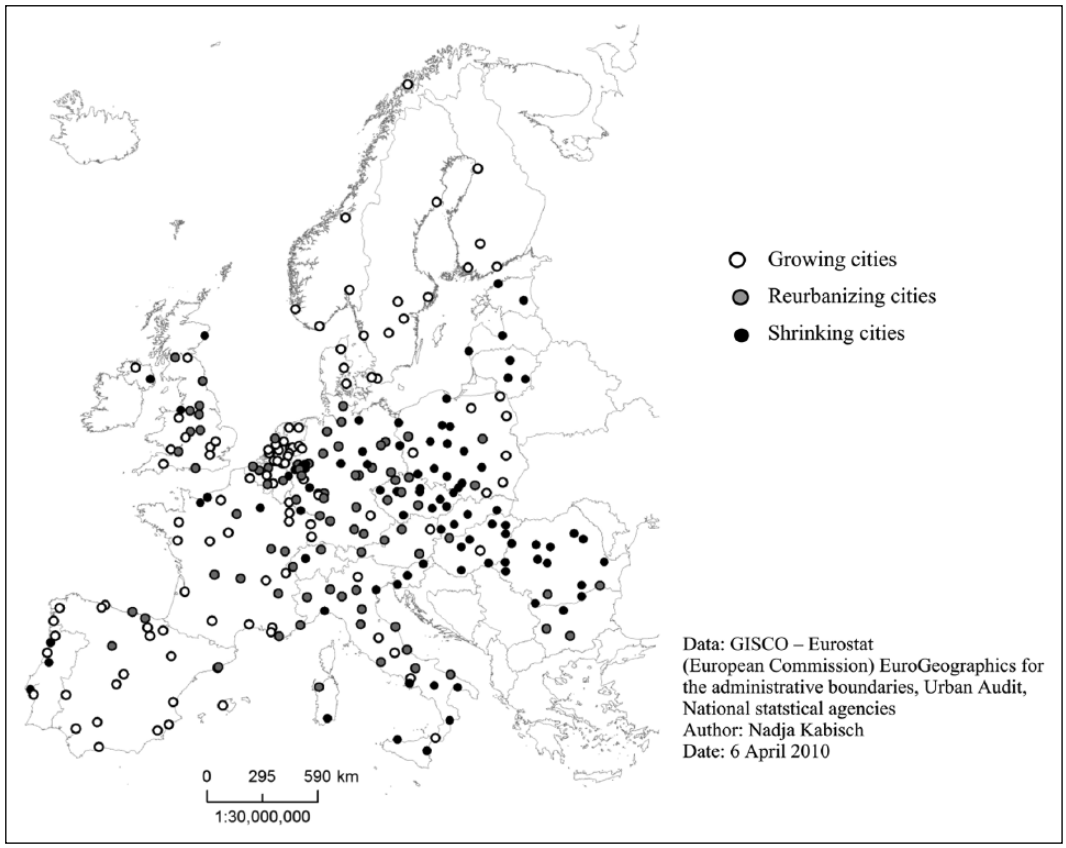

Figure 1. Population development in large European cities, 1991–2008.
Source: Kabisch et al. (2012).

continuous growth for nearly 60 years. Another group of cities has managed to recover from previous decline over the past three decades. At the same time, a large number of urban areas have been losing population. According to recent studies, almost 42 per cent of all European cities (with a population of 200,000 or more) are currently shrinking (Turok and Mykhnenko, 2007). In eastern Europe, shrinking cities constitute the overwhelming majority – here, three out of four cities report a decrease in population (Mykhnenko and Turok, 2008).

Within this context, the fact that some of Europe's largest cities have been shrinking has not only become normality across Europe, but also raised questions for the urban studies community. The reason for this is that, whereas the commonly used indicator (i.e. population loss) that defines shrinkage is fairly simple and easy to grasp, the nature of the process and its causes, consequences, and dynamics are varied. This leads to both phenomenological and theoretical complications and, as a consequence, the definition of shrinkage and its causes remain a matter of intense debate.

Since Philipp Oswalt and others' seminal, multi-volume study of shrinking cities (Oswalt, 2005, 2006; Oswalt and Rieniets, 2006), this debate has been attracting increasing attention and, today, a growing group of urban scholars is pondering the causal, spatial and temporal dimensions of urban shrinkage. Most recently, the journals *International Journal of Urban and Regional Research* and *Built Environment* devoted their

March and June 2012 issues, respectively, to shrinking cities as a special 'urban challenge of globalization', boldly declaring that the academic and policy communities are finally becoming aware of urban shrinkage as a truly global and multi-faceted phenomenon. Nevertheless, the feeling most commonly expressed in the contributions (see, for example, Audirac et al., 2012; Martinez-Fernandez et al., 2012a, 2012b; Wiechmann and Pallagst, 2012) – and fully shared by us – is that shrinkage continues to be misunderstood in all of its expressions and representations. Unsurprisingly, perhaps, a commonly accepted definition of what constitutes a shrinking city is yet to emerge (see, for example, Beauregard, 2009; Reckien and Martinez-Fernandez, 2011).

Against this background, the primary objective of this article is to contribute to a nuanced, differentiated and integrative understanding of shrinkage. We focus on three interrelated points: first, the article presents urban shrinkage as a spatially and temporally inhomogeneous phenomenon; second, it shows that the causes of urban shrinkage are as varied as they are numerous. Although shrinkage is often associated with economic decline, we argue that an economic downturn is a sufficient but by no means necessary cause of shrinkage and that a more differentiated understanding of shrinkage also needs to include demographic change and suburbanisation. Third, we deal with the impacts of shrinkage. Why does population loss make a difference and how far does it change urban conditions? We discuss this question both in general as well as with respect to the issue of housing, as a way of highlighting the complexity of shrinkage.

With this in mind, the article explores the varieties of shrinkage of cities in the European Union (EU) and beyond. It provides an original conceptualisation of urban shrinkage, bringing together its causes, impacts and dynamics, and setting them in the context of locally based urban trajectories. The article is based upon empirical evidence gathered by the authors in the course of the EU's 7th Framework Programme project, *Shrink Smart – The Governance of Shrinkage within a European Context* (grant agreement no. 235119).

European debates on shrinkage

We begin with a brief introduction to key national debates on shrinkage across Europe, which highlights a number of persistent incoherencies in political and scholarly debates.

At first glance, the debate on urban shrinkage in Europe is not new. As European cities have experienced the impact of declining local economies, demographic change, suburbanisation and, consequently, population loss, a series of debates on shrinkage has developed over time. Most of these discussions, however, were conducted primarily at the national level, and thus often remain out of sight of the Anglophone literature.

Probably the most prominent and well-known debate on urban shrinkage has taken place in the *United Kingdom*. Here, economic decline has been at the centre of attention. In the second half of the twentieth century, the established centres of heavy and auxiliary industries, such as Birmingham, Glasgow, Liverpool, Manchester, Newcastle and Sheffield, experienced the abandonment of vast industrial areas. Britain's deindustrialisation was accompanied by suburbanisation and led to the abandonment of residential housing in the inner city, social deterioration and decay of the affected neighbourhoods. Complex regeneration efforts that followed included attempts at neighbourhood restructuring and economic revitalisation (Carmon, 1999; Couch and Cocks, 2011a, 2011b; Power and Mumford, 1999; Roberts and Sykes, 2000).

In *Italy*, by contrast, urban shrinkage has never been widely discussed, although since the 1980s there have been some debates on selected consequences of urban shrinkage, including physical dilapidation, uninhabited urban land and the influx of poor households and migrants into inner-city areas (Calza Bini et al., 2010; Caselli, 1994). In *Germany*, the debate has moved around three anchor points. The first was the experience of deindustrialisation in regions with mono-functional economic structures, primarily the Ruhr basin. This debate had its peak in the 1980s and set foci similar to the debate in the UK, with attention to the need for economic diversification and urban restructuring (Friedrichs,

1993; Häußermann, 1992). The second issue – closely related to the first – concerned the decline of core cities (using the term 'shrinking cities') as a consequence of demographic change and suburbanisation in the late 1980s (Häußermann and Siebel, 1988). Finally, the debate on shrinkage reached newspaper headlines as the result of massive and rapid population loss experienced by eastern German cities in the 1990s, followed by a housing-focused urban restructuring programme aimed at resizing cities for a reduced number of inhabitants.

In the *postsocialist eastern European countries*, such as Poland, the Czech Republic, Romania and Ukraine, the debate about the consequences of 'depopulation' (Andrle, 2001; Obraniak, 1997; Tvrdík, 2007) only emerged after the fall of the Iron Curtain. Whilst the collapse of state socialism had significantly accelerated the on-going demographic change in the region, in terms of declining birth rates and ageing (Haase et al., 2008, 2011), suburbanisation contributed further to a decrease in population within the administrative boundaries of cities in eastern Europe. In contrast to eastern Germany, housing surplus has hardly been a pressing concern here; as a result, the perception of population decline as a growing problem has not (yet) developed. Only when demographic decline and large-scale deindustrialisation have overlapped could one observe disinvestment in housing and spreading areas of dereliction (Krzysztofik et al., 2011; Mykhnenko et al., 2012a).

To summarise, urban population loss has been perceived, reported and discussed quite differently across the continent. The national *academic* debates often appear to be very similar in focus to the respective national *policy* debates, with urban scholars concentrating on the issues prioritised by the respective national governments, politicians and planners. In the course of our research, we have not found a single national approach that could (help to) explain the empirical puzzles we have encountered in the 10 shrinking cities in which we conducted the fieldwork. Instead, within this sample, we have uncovered multiple, intersecting causations of shrinkage, as well as variegated experiences. The impact of this population loss was left unexplained by any of the existing conceptions alone; hence the need for a theoretical alternative.

Systematising urban shrinkage: a conceptual model

To encompass the multiple phenomena of urban shrinkage, we suggest an integrative conception which defines shrinkage in a rather pragmatic, restricted and application-orientated way. The conceptual model we offer serves as a heuristic device, aimed at building a framework for systematising the variegated experiences of shrinkage. We conceptualise urban shrinkage as an empirical phenomenon resulting from the interplay of changing drivers of shrinkage at different spatial levels (from regional to global) that produces a decline in population at the local scale (Figure 2). These drivers of shrinkage may be related to economic decline, demographic change, and settlement system changes in the form of suburbanisation and urban sprawl (Couch et al., 2005; Kabisch et al., 2008; Nuissl and Rink, 2005). They may also include environmental disasters and radical changes in the political and administrative systems (e.g. through border changes due to warfare or the peaceful in-/exclusion of territories; see Großmann et al., 2008; Oswalt and Rieniets, 2006).

We consider population decline as the main indicator of urban shrinkage (similar to previous studies; see Bradbury et al., 1982; Turok and Mykhnenko, 2007); thus, we have incorporated both shrinking and shrunken cities into our sample because, in most cases, shrunken cities have to cope with the consequences of shrinkage over a long period of time, even after the eventual stabilisation of population (Rink et al., 2012).

A 'multi-theoretical' understanding of shrinkage, as suggested here, is in line with the actual state of theorising urban population loss. Here, stage- and life-cycle theories of urban development (Berry, 1977; Van den Berg et al., 1982) compete with concepts of 'uneven development' (Harvey, 1982, 2006; Smith, 1984), ideas about the changing territorial division of labour (Lipietz, 1977; Massey, 1984; Scott, 1988), explanations focusing on changing

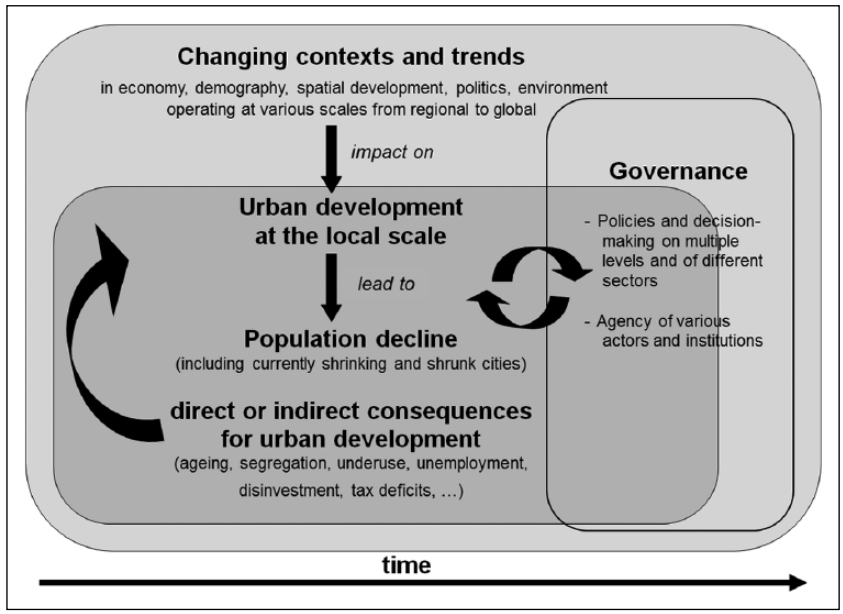

Figure 2. A conceptual model of urban shrinkage.
Source: authors' work.

urban forms and the emergence of 'exopolis' (Soja, 1989), 'edge cities' (Garreau, 1991) and 'post-suburbias' (Teaford, 1996), as well as discussions of the so-called second demographic transition (Van de Kaa, 1987). Whilst acknowledging the fundamental ontological and epistemological differences, we argue that bringing these approaches together in a flexible and integrative fashion might offer a productive way forward.

In particular, we contend that shrinkage should not be universally attributed to a single macro-explanation. Thus, for example, economic decline in the course of a crisis of traditional industries might play the dominant role in a particular setting. However, in other settings it could lose much of its explanatory power. Urban shrinkage therefore evolves when the place-specific interplay of economic transformation, suburbanisation and demographic change leads to population decline.

In addition to the causes of population loss, the proposed conceptual model includes its consequences for urban development, which affect the local labour market, socio-spatial differentiation, housing, patterns of land use, the state of social and technical infrastructure, municipal finances, investment and the overall local economy (Couch and Cocks, 2011a, 2011b; Fol, 2012; Koziol, 2004; Moss, 2008; Scorsone, 2012). We define the *direct* consequences of shrinkage as either those resulting from population loss (e.g. housing vacancies, the underuse of infrastructure or decreasing tax revenues) or as the immediate effect of these macro-processes, such as the emergence of brownfield sites following deindustrialisation. Subsequently, the *indirect* consequences are defined as a combined product of feedback loops (see Figure 2).

Furthermore, the model acknowledges that the individual trajectory of urban shrinkage is influenced by particular governance arrangements operating on different spatial levels, from local to global, and through time. In this context, shrinking or shrunken cities are not only driven by changing contexts and tendencies, but also subject to the forces of regional, national and European politics, and the struggle between private and public interests. The shrinking cities' responses to influences by

supra-local actors and agencies thus co-determine the course of urban development (Bernt et al., 2010; European Commission, Directorate General for Regional Policy, 2011). Finally, since shrinkage is a highly dynamic process, the conceptual model must be also placed within the particular historic context (Beauregard, 2009).

Applying the conceptual model of urban shrinkage: assessing the evidence across Europe

Empirical background

Having introduced the conceptual model of urban shrinkage in a general way, we apply it to a sample of cross-European cases in the following sections. Our argument is based on empirical evidence gathered during extensive fieldwork carried out in 2009–2012 in Liverpool (the UK), Leipzig and Halle (Germany), Ostrava (the Czech Republic), Sosnowiec and Bytom (Poland), Genoa (Italy), Timişoara (Romania), and Donetsk and Makiivka (Ukraine).

Taken together, the 10 cases represent a collection of individual exemplars, rather than a strictly systematically selected and methodologically controlled sample. There are both theoretical and practical reasons for this. Theoretically, as others have convincingly demonstrated (Kantor and Savitch, 2005; McFarlane, 2010; Pickvance, 1986; Robinson, 2011), the chances for a methodologically rigorous case selection are fairly limited in the field of urban studies and past experiences have led to a reduction of the expectations vis-à-vis a methodologically rigorous comparison. Consequently, a number of scholars have called for a 'comparative gesture' in their research (Robinson, 2011), rather than strictly comparative urban studies. In addition to these methodological difficulties, a collaborative international research project like ours was also confronted with practical constraints, because the number of experienced and reliable research partners familiar with shrinking cities has proven to be rather limited.

Against this background, the choice of case studies was made primarily for the following reasons: (i) the majority of our cases are from Eastern Europe, given that the majority of shrinking cities are currently located in this region; (ii) at the same time, Italy, the UK and Germany appear to be the largest and best paradigmatic cases from the West European shrinking cities' perspective, because they have experienced and (at times) responded to the problems/challenges of suburbanisation, external in- and out-migration, and declining birth rates. In this regard, Liverpool and Leipzig were chosen as two out of the only five continuously shrinking cities located in Europe between 1960 and 2005. Halle was included because it is Europe's most rapidly shrinking city since the collapse of state socialism (Turok and Mykhneno, 2007). All of the article's empirical analysis is based on activities undertaken within the framework of the FP7 'Shrink Smart' project and reported accordingly (see Calza Bini et al., 2010; Couch and Cocks, 2010; Krzysztofik and Runge, 2010; Mykhnenko et al., 2010; Nadolu et al., 2010; Rink et al., 2011a, 2011b; Rumpel et al., 2010).

Drivers of shrinkage

We begin with the drivers of shrinkage. By applying the conceptual model to the 10 urban exemplars, we reveal a fairly variegated, multi-causal process of urban change. Nevertheless, in all of the cities we have observed a close relationship between demographic and economic processes, which, in turn, have influenced the settlement structure, land use patterns, and the sociodemographic as well as the socioeconomic composition of population. All of the 10 cities were affected by the following three major drivers of urban shrinkage: economic decline and job losses; suburbanisation and changes in the settlement system; and natural population decline (the excess of deaths over births and subsequent ageing). These drivers were themselves influenced by a series of intervening factors, including the shape of regeneration policies, the physical structure of the city, and family and housing cultures, often operating at different scales (national, regional, urban and local). Though generally leading to population loss, the major drivers of shrinkage have influenced the cities in a very time- and place-specific manner. Thus, whereas in eastern Germany economic

transformation, demography and suburbanisation have all played a role, in the cases of Genoa, Timişoara and Donetsk, a decline in population could not be attributed to the state of the (buoyant) local economy.

At the same time, pathways of shrinkage are better understood if set into their respective contexts: it makes a difference whether population loss happens in tight or weak housing market conditions, in compact or fragmented cities, or in settings characterised by accentuated national welfare politics or neoliberal workfare arrangements. All of these factors have an impact on the specific form of urban shrinkage, so that the outcomes of similar drivers (economic restructuring, demographic change and suburbanisation) often vary from place to place.

Facets of population decline

Population decline, defined here as the key indicator of shrinkage, also has a variety of facets. It varies according to the specific combination of natural population change and out-migration. In Genoa, natural decline and, later on, out-migration (suburbanisation) were the major sources of population loss, accompanied by the ageing of the remaining population. In post-Ceausescu Timişoara, the birth rate dropped dramatically after the legalisation of abortion in 1989. In all the post-communist cases, including eastern Germany, low fertility levels have been explained as a reaction to the shock of transition, although the decline in birth rates had actually begun long before the late 1980s. Local demographers have called this rapid reduction in birth rates a 'demographic shock' (Rychtaříková, 1999; Sobotka et al., 2003; Steinführer and Haase, 2007). Eastern German cities have been hit especially hard by a combination of massive (job-related) out-migration to the western areas of the country after 1989 and the low fertility rate of 0.77 children per woman, the world's lowest recorded level in 1994 (Statistisches Bundesamt (Federal Bureau of Statistics), 2003).

Job-seeking out-migration has also been an important factor in Liverpool from the 1970s onwards (Couch et al., 2005). The same applies to Genoa. In post-communist Europe beyond eastern Germany, suburbanisation gained importance only in the late 1990s. Today, eastern European cities (especially the more economically successful ones) continue to lose population as a result of suburbanisation and continuing low birth rates (Steinführer and Hall, 2011). Nevertheless, shrinking cities do not always follow national trends. In many cases, the national trends appear to be more pronounced and advanced, as in Bytom, Genoa, Halle and Sosnowiec. In other cases, however, regional and local trajectories differ from national trends, as is the case in Liverpool. Often, cities' trajectories also diverge from those of their hinterland, as is the case in Timişoara and Ostrava (region), both of which are experiencing pronounced suburbanisation. Donetsk and Makiivka have bucked both the regional and national migration trends.

Moreover, the temporal dynamics of shrinkage in the 10 cities of the Shrink Smart sample has also generated diverse trajectories. We have observed long- as well as short-term shrinkage; some cities have experienced a mild decline in population, whilst others have suffered the sudden loss of a large proportion of their inhabitants. Table 1 compares the severity and persistence of urban shrinkage in the 10 case study cities between 1931 and 2010. During this period, Liverpool lost the largest share of population, in both absolute and relative terms (414,700 inhabitants or 49 per cent in total), whereas the swiftest rates of shrinkage occurred in Halle (1.4 per cent annually) and Bytom (1.1 per cent annually; see Figure 3). To put it differently: although Liverpool, Leipzig and Halle appear to be the hardest hit by shrinkage in terms of absolute population numbers, the tempo of shrinkage matters also plays an important role, especially for intervention policies. In terms of annual rates, Halle, Bytom, Timişoara and Makiivka were the most affected. Most of the cities under investigation lost up to one-quarter of their population, although over very different periods of time, ranging from 15 to 72 years. In the cases of long-term shrinkage (Liverpool, Leipzig and Genoa), the cities concerned lost hundreds of thousands of residents. In the short- to medium-term cases, encompassing all of the eastern European cities, the rapid and significant population loss was initiated by the collapse of state socialism, although some of them (Bytom, Makiivka and Halle) had already started losing inhabitants in the 1980s.

Table 1. Ten urban shrinkage trajectories: absolute population figures, absolute and relative annual percentage change in 1990–2010, ranked by the average annual population loss rate, percentage, 1931–2010.

	Continuous shrinkage period (years)	Population at peak	Population at nadir	Population at present (2010*)	Average peak to nadir population change rate per year (%)	1990-2000 average population change rate per year (%)	2000-2010 average population change rate per year (%)	1990s relative** average population change rate (%)	2000s relative** average population change rate (%)	Overall shrinkage trajectory
Halle	1986–2008 (22)	329,625	230,900	232,323	−1.36	−2.03	−0.64	−2.45	−0.63	Abrupt, decelerating
Bytom	1987 –present (23)	239,800	181,617	181,617	−1.05	−1.27	−1.00	−1.33	−1.00	Abrupt
Timisoara	1989–2004 (15)	351,293	303,640	311,440	−0.90	−0.31	−0.57	0.12	−0.25	Abrupt, stabilised
Makiivka	1986 –present (24)	455,000	358,156	358,156	−0.89	−0.90	−0.72	−0.36	−0.01	Fast
Genoa	1970–2003 (33)	842,114	601,338	607,906	−0.87	−0.98	−0.39	−1.01	−1.01	Fast, stabilising
Donetsk	1991 –present (19)	1,121,400	962,049	962,049	−0.75%	−0.83%	−0.64%	−0.30%	0.06%	Moderate pace, decelerating
Sosnowiec	1987 –present (23)	259,600	217,638	217,638	−0.70	−0.71	−0.97	−0.77	−0.97	Moderate pace, accelerating
Liverpool	1931–2003 (72)	855,000	440,300	445,200	−0.67	−0.60	−0.02	−0.89	−0.56	Gradual, stabilised
Leipzig	1933–1998 (65)	713,470	437,101	518,862	−0.60	−0.35	0.58	−0.76	0.58	Gradual, abrupt resurgence
Ostrava	1990 –present (20)	331,219	303,609	303,609	−0.42	−0.30	−0.55	−0.24	−0.79	Gradual, accelerating

*Population on 31 December 2010, expect for Halle, Leipzig, and Timisoara, which is 31 December 2009.
**The relative population change rate is the city's average annual population change rate minus the respective national average annual population change rate.
Source: Shrink Smart Database.

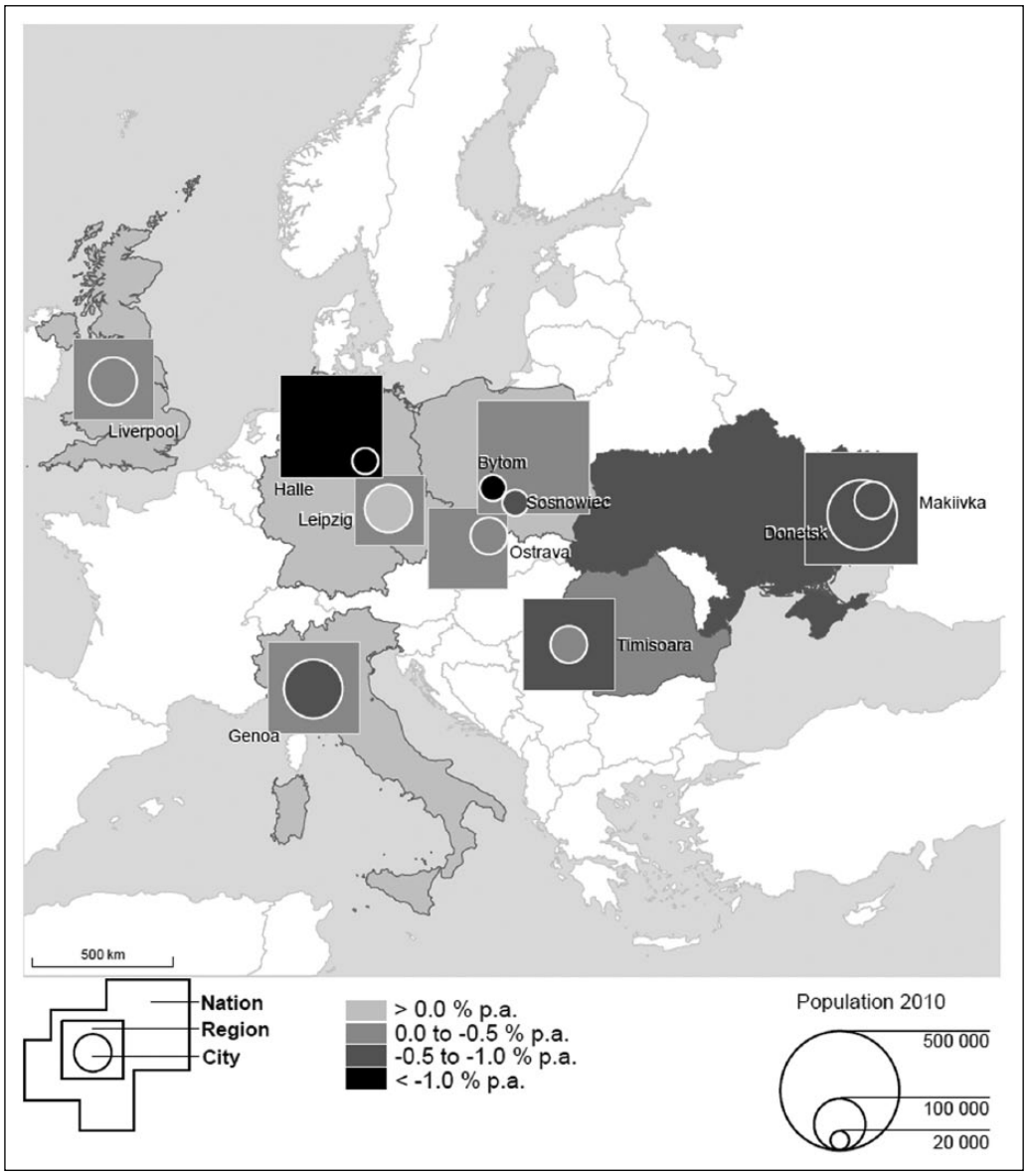

Figure 3. Contextualising shrinkage: average population change in selected European cities, regions and nations, 1990–2010 (% per year).
Source: Shrink Smart Database.

Hence, first, all of the cities in the sample differ with regard to the *temporal dynamics* and *scope of shrinkage* (Figure 3). In eastern Europe, the impact of the post-communist transitions was most severe during the 1990s (Haase, 2012; Mykhnenko et al., 2012b). Moreover, in some cases, the population stabilised and started to increase again during the 2000s, returning some cities to stable or even positive growth rates (e.g. Leipzig). Second, in all the cases, urban shrinkage has progressed through

phases of *higher* and *lower intensity*. There was a close relationship among the causes, duration and severity of shrinkage. Whereas Liverpool and Genoa had experienced significant shrinkage during the 1970s and 1980s, as a result of deindustrialisation and the rise of maritime container transport, many of the eastern European cities (e.g. Bytom, Donetsk, Makiivka, Ostrava and Sosnowiec) witnessed shrinkage as a consequence of the decline of coal-mining in the late 1980s to early 1990s. Suburbanisation has also proved to be a more significant issue for these eastern European cities than for their western counterparts (see Mykhnenko and Turok, 2008).

Third, future perspectives for shrinking cities depend decisively on the respective *national population trajectories*, and on the relative performance of their urban economies, in comparison to the countryside and smaller settlements (Table 1). In the short term, cities such as Halle, Donetsk, Makiivka, Sosnowiec, Bytom and Ostrava will probably continue to experience population loss; at the same time, cities such as Leipzig, Liverpool, Genoa and Timişoara are likely to see a halt in the decline of their populations and may even see a resurgence. However, in the long term, because only the UK's population is projected to grow between 2010 and 2050, further population loss is practically inevitable for all of the case study cities, except Liverpool. Figure 3 embeds the 10 cities into their regional and national demographic context. As the map indicates, all of the cities are situated in shrinking regions, most obviously Halle, Donetsk-Makiivka and Timisoara. In terms of the national context, the cases differ – whilst the populations of Ukraine and Romania have continued to decline since the early 1990s, the other national contexts are characterised by a more-or-less steady state.

Furthermore, all of the cities vary with regard to their *relative position* within the national population patterns. Liverpool, for instance, has been the worst affected urban area in England as a whole (Turok and Mykhnenko, 2007: 179), whereas the north-west of England, as a whole, continues to be one of the UK's fastest shrinking regions. Genoa appears as a specific case in the Italian context, because of its singular demographic history (for centuries, Genoese women married and had children fairly late in life). The population trajectories of Bytom, Donetsk, Makiivka, Ostrava and Sosnowiec, however, have been fairly typical of coal-mining regions, first registering population loss on the eve of the post-communist transition.

Finally, we emphasise that the severity and persistence (see Beauregard, 2009) of shrinkage have differed considerably amongst the cities concerned. In all of them, we have observed the *complex* and *uneven* nature of urban shrinkage. Often, either a particular neighbourhood or a particular arena of urban life was especially affected by shrinkage. Shrinkage can also vary spatially within a city; quite often, the inner-city areas have experienced the most pronounced shrinkage.

The consequences of shrinkage

Comparing the consequences of urban shrinkage is a complex issue. Various dimensions of urban development, such as housing, the local economy, the labour market and infrastructure, are typically influenced by numerous and very different factors, including the urban form, the industrial structure, (supra-)national and regional regulators, the local culture and the degree of social polarisation. As a consequence, whilst exploring one particular type of infrastructure (e.g. housing), it is often impossible to isolate the impact of shrinkage per se from other factors. Moreover, the evolution of urban shrinkage plays an immense role: has shrinkage occurred over a long time or was it abrupt? Did it affect the entire city or only certain parts of it?

In order to demonstrate this complexity, the following sections discuss the consequences of shrinkage for one particular field of infrastructure – housing – in detail.

Consequences: impact on housing

Along with other place-bound infrastructure, local housing is often severely affected by population loss. With decreasing population numbers, less demand is generated for the existing housing stock, leading to a fall in rents and housing prices, a cut in real estate investment and growing residential

vacancies. In striking contrast to the cities with booming and overheated property markets, the effect of low demand on shrinking cities is highly problematic –for both the landlords and the affected neighbourhoods. The lack of maintenance, personal and property safety issues, and the perforation of the urban fabric have proven to be among the major – obvious to everyone – problems for the old built-up, inner-city neighbourhoods as well as for the peripheral social(ist) housing estates. Profit losses, the devaluation of vacant sites, low and falling house prices, depreciating mortgage values, negative equity and the growing expenditure on marketing are the key phrases that describe the effect of urban shrinkage on real estate markets in these cities (Kabisch et al., 2008).

Housing vacancies in some of these cities have been closely connected to the dilapidation and decay of the urban fabric. In Liverpool, boarded-up housing is a common sight, with rows of houses and shops standing vacant, waiting for demolition; at times to pave the way for the modern, less dense housing developments. In Genoa, decay is especially acute in the historical city centre, where the buildings have not been modernised for decades, and where the poorer old-age pensioners and less-skilled migrants concentrate. As illegal renting of the dilapidated housing stock, especially to (illegal) migrant households is, in many cases, more profitable than renovating the buildings, public intervention is urgently needed to save the rich architectural heritage from destruction. In eastern European cities such as Bytom and Ostrava, the city centres were subjected to almost complete disinvestment for decades under state socialism. As a result, the old built-up housing stock was already fairly dilapidated, even before the onset of transition. Twenty years on, the technical condition of many buildings in these cities has become critical and beyond repair, rendering them uninhabitable (Krzysztofik et al., 2011: 61–65).

Yet shrinkage does *not* inevitably lead to vacant housing. Its emergence critically depends on the interaction between local supply and demand. Though the demand for housing and the number of inhabitant households are certainly related variables, this relationship is not necessarily positive and linear. In those shrinking cities where the price of housing is likely to fall, occupancy by low-income in-migrants might actually increase. Hence, one of this article's major findings is that there is no simple relationship between shrinkage and housing vacancy; additionally, generalised assumptions about shrinkage can easily be false.

Thus, for example, demographic change and ageing have resulted in smaller households in all of the cities concerned. As housing demand is not entirely elastic, smaller household sizes have resulted in an actual increase in the per capita consumption of space, with fewer inhabitants using more dwelling space – the phenomenon observed in both western (e.g. Genoa) and eastern Europe (in Bytom, Donetsk, and Timişoara; see Krzysztofik et al., 2011: 64). Here, population decline has intensified the processes of ageing and this has led to the underusage of flats, mostly in the inner city, which had hitherto absorbed the potential housing surplus in the city. Although a decline in population should theoretically involve shrinking housing demand, potentially leading to an increase in vacancies, this tendency has been effectively countered by the demographics of ageing and growing consumption of living space per capita.

Another crucial aspect, which explains why vacancy has not become a problem in some shrinking cities, is related to historical housing policies. In particular, housing and urban infrastructure in general were a low priority for the central planners under state socialism; housing shortages were notorious in the system. Therefore, the decline in population has led to a 'relaxation' in the demand for housing and has been seen as a relief rather than a burden in many eastern European countries. A further apparent paradox has emerged: whilst housing demand continues to exceed housing supply in cities such as Ostrava, Bytom and Timisoara, vacant housing, nonetheless, can easily be found there, often in close proximity to well-established, popular neighbourhoods. This is primarily because of disinvestment, poor maintenance and the unsatisfactory physical condition of the inherited housing stock that has been damaged by coal-mining activities, as well as ground- and surface water flooding (e.g. in Bytom, Makiivka and Ostrava).

Under such circumstances, low demand does not lead to an oversupply of housing. It slows down, however, both the renewal of the old housing stock and the construction of new housing, leading to serious difficulties with the adjustment of the housing stock to evolving needs. The current economic and financial crisis has made the situation even more complicated, because many of the pre-2008 building projects were halted and might never be finished (e.g. in Donetsk, see Mykhnenko et al., 2011).

Within the sample, the eastern German cities of Leipzig and Halle appear as outliers, both with regard to the emergence and the magnitude of housing vacancies (as closely reflected in the German national debate on shrinkage). Whereas, in the German Democratic Republic inner-city housing areas were left to decay, after German reunification tax-subsidised extensive refurbishment and investment in new housing construction have coincided with massive outmigration (and suburbanisation). Such a combination of an increase in supply and a decrease in demand was bound to go wrong. Housing vacancies have rapidly spread all over eastern Germany, affecting every segment of the housing market. According to one estimate, up to one-sixth of the entire East German housing stock was vacant at the turn of the millennium (Rink et al., 2012).

In most cases, urban shrinkage has led to lower population densities. This might not have much of an impact on the spatial distribution of low- and high-income households. However, it has influenced the age structure of neighbourhoods, resulting in a concentration of certain residential groups and a selective out-migration of others. In the inner city of Genoa, de-densification and out-migration have led to ageing, a concentration of elderly single-person households and an increase in the vacancy rate within the old housing stock. In Ostrava, one highly desirable housing estate (Poruba) has faced rapid population ageing, as young people left their parental homes. In Liverpool, the clearance of industrial and residential sites and the subsequent construction of better quality, lower density housing for a variety of income groups have been regular practice for decades.

Feedback loops, governance and contexts

The evidence gathered in the course of research for this article shows that neither the causes nor the consequences or impacts of shrinkage can be understood in a one-dimensional fashion. A further layer of complexity is added by the introduction of feedback loops (marked by arrows linking the boxes on the left and right side of Figure 2). The impact of shrinkage on different urban policy arenas often affects both the overall pathway of the city's development as well as its policy response to shrinkage. Housing vacancies in eastern German cities, for example, represent a direct consequence of population decline and reduced demand. Housing vacancies, in turn, have affected particular urban districts: while they were almost absent in more sought-after areas, they have reached the highest level in the 'least attractive' neighbourhoods. New forms of segregation have emerged as a result. Consequently, housing vacancies became the main stimulus for implementing a new federal programme, 'Urban Regeneration East', leading to the demolition of more than 350,000 flats over the last decade, thereby erasing entire neighbourhoods. Sometimes (as the dashed arrow on the left side of our model in Figure 2 shows), local consequences of shrinkage impact on an upper scale, for example when housing vacancies and financial distress of local housing companies in eastern Germany led, in 2001, to the setting up of a restructuring programme at the national scale.

Second, shrinking cities' fates are driven or determined not only by processes but also by actors and their decision-making. As we show in our model (Figure 2), governance enters primarily through the agency of various actors and institutions at different spatial levels, be it state or municipal authorities, housing companies, infrastructure providers, investors or civic associations, all representing diverging interests and strategies of action and cooperation. Decision-making and policies depend on how the actors involved respond to given structures and processes. The above-mentioned example of urban restructuring as a response to housing vacancies in eastern Germany shows how local actors (policy-makers together with housing companies) exerted

their influence on national-scale policymaking by setting housing market problems onto the agenda when shrinkage officially became an issue in Germany around 2000. How variegated these processes are across various national contexts is demonstrated by the fact that, whereas it was possible to address housing vacancies within the German framework of the welfare state and national urban policy, in Bytom (Poland) it was very difficult to make the same problem a political issue, because housing there is framed as a task of market actors. Decay and housing vacancies were viewed only as consequence of disinvestment by owners. Housing vacancies were addressed publicly and thus entered the local political agenda within recent months only after protests from local civic groups.

Finally, one has to stress that shrinkage cannot be understood outside the context in which it is embedded. This refers to different scales of shrinkage and is valid for both the intra-regional relationships and global economic positioning. For instance, intra-regional migration patterns are important for cities that form part of a conurbation, such as Donetsk and Makiivka in the central Donbas, and Sosnowiec and Bytom of the Upper Silesian industrial agglomeration. For the cities outside large conurbations, the regional context is also important because of strong suburbanisation tendencies within the wider hinterland. In the case of Ostrava, the city's specific character as a polycentric urban area also makes the regional context significant.

In turn, the national context is crucial when trying to understand the divergent trajectories of shrinkage. In the UK, Germany and – to some extent – Italy, central governments have contributed decisively to tackling the problems of shrinkage (e.g. in the housing sector). By contrast, in eastern Europe we have uncovered a widespread lack of support for shrinking cities; even worse, in some desperate situations, urgent assistance by the state has been actively withheld. In Ukraine, the government formula used for arranging inter-budgetary fiscal transfers ignores both the decline in population and environmental degradation suffered by large, (post-)industrial, net 'donor' cities such as Donetsk, leaving them with insufficient funds to deal with the profound challenges of urban shrinkage (Mykhnenko et al., 2012a).

At the European level, EU actors and regulations do influence the fortunes of shrinking cities. EU funding has become increasingly important for shrinking cities, in terms of both research and urban practice and planning. At the same time, shrinkage is not listed as a key priority in any of the EU's strategic documents and funding schemes, either current or forthcoming (Haase, 2012). Moreover, many shrinking cities are obliged to spend a large proportion of their dwindling financial resources on co-funding European projects, thus further exacerbating fiscal strain. As we have discovered in Ostrava and Bytom, municipal budgets have recently been so tight that the cities were unable to prepare even urgently needed applications for EU funding, because they simply could not raise enough funds for obligatory co-payment.

Conclusion

This article has developed a novel conceptual model of shrinkage and, to gain an empirically rich explanation of divergent urban trajectories, applied it to 10 large shrinking cities across Europe. A number of major conclusions can be drawn from this article. First, urban shrinkage generates *different dynamics* in terms of its duration, scope, pace and underlying factors. The three main macro-developments identified in the article (economic crisis, demographic change and suburbanisation) have played a role in all 10 shrinking cities. Nevertheless, the combination of causes, consequences and resulting trajectories has varied dramatically. Thus, the study of urban shrinkage should go beyond superficial similarities and aim to be more sensitive to specifics, and to the actual temporal and spatial dynamics through which shrinkage unfolds. Second, (localised) urban shrinkage is generated by the *intersection of societal trends* operating at different scales. Usually, it is not an outcome of a singular trigger of urban development but rather results from the interplay of at least several triggers. In some cases, deindustrialisation and job-related (mass) outmigration, combined with a post-transition decline in fertility, have played the major role; in others, economic decline and suburbanisation are the main triggers. It is these specific intersections,

overlaps and reinforcements of various determinants of shrinkage that need to be given proper attention. Third, a 'one-size-fits-all' recipe for combating urban shrinkage is not available, feasible or even desirable. As this article has shown, trajectories, impacts and successful policy responses have varied considerably. Fourth, the onset of urban shrinkage in eastern Europe was intrinsically linked to (and often directly triggered by) the political changes sweeping the continent during the late 1980s to early 1990s, leading to radical economic restructuring and a rapid fall in birth rates. Subsequently, however, the individual (mis)fortunes of the cities in the region evolved, starting to reflect more local and regional problems. This holds especially for the neighbouring cities of Sosnowiec and Bytom, where (local) economic transformation has not occurred simultaneously: an immediate economic decline of Sosnowiec in the early 1990s was followed by restructuring in the 2000s, whereas Bytom entered a period of steep economic decline (enduring until the present) only after 2000. Yet nowhere did deindustrialisation lead to the complete closure of all large industrial establishments, causing mass outmigration, as happened in eastern Germany following reunification. While Donetsk, despite the economic turmoil of the 1990s, continues to be a major provider of funds within the national fiscal redistribution system, neighbouring Makiivka has firmly become one of the most dependent recipients of central government transfers. Thus, *context plays a crucial role* in understanding the pathways of urban shrinkage.

This article's overarching finding is that urban shrinkage is a very *complex process* and this complexity should be taken seriously in theoretical and empirical terms. Building on the current attention to premises of complexity theory in urban research and planning (De Roo et al., 2012), this means focusing on dynamics, interdependencies and feedback loops to explain the emergence of the observed phenomena. We believe that the conceptual model provided in the article will become a useful research tool for grasping this complexity and systematising both the empirical phenomena and research questions.

Finally, this article argues for a substantial shift away from the pattern-orientated research towards a more *process-orientated, context-sensitive research*. Process orientation stresses how shrinkage emerges and develops and which dynamics underlie this process. Context sensitivity means paying attention to various spatial levels and to the generation and transfer of feedback amongst the many actors involved. The local specifics require close attention, if one is to overcome the 'nation' and 'region' biases in the available heuristics and theories.

In summary, by developing the heuristic model of urban shrinkage, this article has sought to explain the enormous variety of real, existing 'shrinkages' across Europe. In addition to systematising different experiences, it has also reflected on the impact of shrinkage on various areas of urban development, demonstrating that context matters substantially in determining the outcomes of seemingly similar macro-developments. Altogether, this article has shown the benefits of studying the varieties of shrinkage in a place- and time-specific manner, as well as of thinking seriously about contextual mechanisms that shape the process. The point here is not to reiterate that 'context matters', but to plead for developing analytical frameworks that can help us to understand and to explain different 'worlds of shrinkage'. The suggested model of urban shrinkage is an open invitation to this debate.

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