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Conceptualizing demographic shrinkage in a growing region –
creating opportunities for spatial practice

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Abstract

1
2 Demographic transitions have an impact on the landscape and urban development. However,
3 when planning for demographic growth, the concept of demographic shrinkage is seldom
4 considered. Consequently, many opportunities for qualitative landscape interventions and urban
5 development remain unnoticed. This article proposes a conceptualization for demographic
6 shrinkage within the context of the growing region of Flanders, Belgium. Demographic statistics,
7 indicators for the risk of shrinkage, and local opinions from the region are cross-referenced with
8 the shrinking cities discourse. Our research shows that Flanders is shrinking in some parts, has a
9 risk of shrinking in many more areas, and should shrink in strategic places from a resilience
10 perspective. Contrary to demographic shrinkage in other parts of Europe and the world, which
11 covers vast territories and results in urban decline, demographic shrinkage in the region of
12 Flanders manifests itself very locally and on a small scale. The research suggests introducing the
13 use of “shrinkage in growth” to implement its specific opportunities and overcome the possible
14 negative effects of shrinkage. The concept of shrinkage in growth implies a systemic
15 understanding of different scales and an integrated spatial practice that goes beyond the strategy
16 of constructing more housing in order to attract more inhabitants.

1. Introduction

1.1. Demographic shrinkage, urban shrinkage and strategies beyond growth

Demographic shrinkage is hardly considered or included in a spatial policy, design and planning when it is not an urgency on a large scale (Haase et al., 2017, Nelle et al., 2017). The global population is growing, and the main discourse that spatial planning, design and policy share is one of accommodating sustainable urban growth (LSE Cities, 2016, United Nations, 2017). Globally, strategies are developed for more people on the same surface area and for the maintenance of the open space or landscapes that are challenged by this demographic pressure. However, many places are shrinking in population, and in the future, even more places are predicted to face shrinkage despite global growth in population (United Nations, 2017, Eurostat, 2018).

In spatial practice, demographic shrinkage or a decline in population has been recognized as one of the main drivers of the complex phenomenon of ‘urban shrinkage’ (Haase et al., 2013). Urban shrinkage, also called urban decline, has been conceptualized “*as an empirical phenomenon resulting from the interplay of changing drivers of shrinkage at different spatial levels (from regional to global) that produce a decline in population at the local scale ... These drivers may be related to economic decline, demographic change, and settlement system changes in the form of suburbanization and sprawl.*” (Haase et al., 2013:4). Places that are considered to be shrinking, are losing, temporarily or not, at least 10% of their inhabitants, or more than 1% annually (Oswalt & Rienets, 2006:156). The phenomenon of urban shrinkage is primarily discussed in a planning discourse focusing on ‘shrinking cities’ (Oswalt, 2006, Großmann et al., 2013, Haase et al., 2013, Hospers, 2013, Berndt, 2016, Nelle et al., 2017, Haase et al., 2017, Mallach et al., 2017), which distinguishes itself from the dominant ‘planning for growth’

40 discourse. In these places, demographic shrinkage has not always been negative (Hospers,
41 2013): in the past decade, the lack of demographic pressure has turned some of these places from
42 problematic cities into dynamic places for transformation, where knowledge is developed for
43 ‘strategies beyond growth’ (Leick & Lang, 2018). In this sense, a shrinking city can indeed be
44 considered as “*a laboratory for experiment and opportunity for societal change*” (Oswalt, 2006).

45 Despite this potential, in most cases of significant demographic shrinkage, the main focus
46 is on short-term solutions to attract more inhabitants or overcoming the negative effects of the
47 accompanying urban decline (Hospers, 2013 in general, Tietjen et al. 2016 for Denmark). Indeed,
48 strategies beyond growth are an exception to be implemented in systems with growth (Leick &
49 Lang, 2018). This focus leaves opportunities untouched, for instance concerning the
50 implementation of ecosystems services (Haase et al., 2014) and the development of open space
51 networks along with demolition plans (Frazier & Bagchi-Sen, 2015).

52 Efforts have been made by the European Union, for example, to help shrinking cities and
53 also regions that are in a context of growth to receive attention from their national policy levels
54 (Haase et al., 2016). Still, the term ‘shrinkage’ continues to have a negative connotation, and its
55 suitability for policy has been questioned (Hospers, 2013, Audirac, 2018). In general, there is a
56 lack of understanding of integrating the concept of demographic shrinkage into spatial practice.
57 This lack of understanding is especially the case in territories with both demographic growth and
58 shrinkage, where it does not lead to large scale urban shrinkage.

59 This paper aims to gain insight into the existence of demographic shrinkage within
60 regional/overall growth and to explore the impact of the concept of demographic shrinkage for a
61 spatial practice focused on growth. This paper, therefore, makes use of the region of Flanders,
62 the northern region of Belgium. Here, shrinkage is not yet integrated into the policy and planning

63 agenda, nor is it a common context for its contemporary spatial practice. More specifically, our
64 objectives are to explore the existence of demographic shrinkage for this region and to interpret
65 demographic shrinkage in relation to its spatial practice.

66 **1.2. The growing region of Flanders**

67 The region of Flanders is growing in population. This demographic trend is predicted to
68 continue in the coming decades (Statistiek Vlaanderen, 2015). The region is often described as a
69 case with a high population density and a fragmented and multifunctional open space (Bomans et
70 al., 2010, Crols et al., 2017, Poelmans and Van Rompaey, 2009). It is also a region where the
71 holistic approach towards landscape is being introduced (Van Damme et al., 2015). At the same
72 time, over the past decades, the built environment has been facing an ongoing development of
73 sprawl with allotments (Loris & Pisman, 2016) as well as ribbon development (Verbeeck et al.,
74 2014). The conversion of open space to built land is still ongoing at the speed of 6ha per day
75 (Crols, 2017).

76 In response to this situation, the Flemish government launched the *White paper of the*
77 *Spatial Policy Plan for Flanders* in 2016. Spatial planning at the provincial and municipal level
78 use the Flemish guidelines. With the launch of the *White paper*, a public debate was triggered in
79 the region. The debate addressed diverse themes such as biodiversity, energy and food
80 production. However, as if it were a taboo, both demographic and urban shrinkage were almost
81 absent in the spatial policy and the public debate.

82 In this context, the Netherlands, a neighboring country of Flanders/Belgium, offers a
83 different perspective. Although the country predicted continuous growth and shrinkage itself
84 remained relatively small from a demographic point of view (van Steen & Pellenbarg, 2010),
85 today they have an active national policy, a public debate and a strategy for demographic and

86 urban shrinkage (Verwest, 2010). Additionally, its scholars have been active on the topic of
87 shrinking cities (Hospers, 2013, Notten, 2017, Neimed, 2018). The Netherlands and Flanders
88 share a similar horizontal urbanization pattern, though characterized by less sprawl in the
89 Netherlands, and face several similar long-term policy and planning questions (Architecture
90 Workroom Brussels et al., 2017). Nonetheless, demographic and urban shrinkage is a policy and
91 planning topic that has hitherto only been developed in the Netherlands (Rijksoverheid
92 Nederland, 2018). The question is, in the absence of a planning and a policy strategy for
93 demographic and urban shrinkage, what does the concept of shrinkage add to the spatial practice
94 of growth?

95

96 **2. Methods: three lenses on shrinkage in growth**

97 This article aims to generate insight into a concept that has limited theoretical and
98 practical background in spatial practice, as is the case for the studied area. Therefore, to explore
99 the existence and interpret shrinkage in growth, the issue has been considered through three
100 lenses: first, actual demographics; second, indicators for risk of shrinkage; and third, spatial
101 policy and its public debate within the region.

102 **2.1. Current demographic data**

103 The first lens focusses on identifying existing population loss in the region. It brings
104 together general trends of specific indicators for demographic change (natural balance, migration
105 and age distribution), and the population statistics at the level of Flanders. The population
106 statistics are analyzed at the level of municipalities using the most local data available, that of
107 sub-municipalities, which are the municipal borders before municipal fusions took place in the
108 1960-70s. Available statistical data from 2005 to 2015 were used for the specific demographic

109 indicators for the entire region (Statistiek Vlaanderen, 2015), and more local data of the
110 population and households for the municipalities and sub-municipalities (Statistiek Vlaanderen,
111 2015, Province of West-Vlaanderen, 2015). This study then also zooms in on the sub-
112 municipalities of the region of the Westhoek in the Western periphery of Flanders. On this scale,
113 the definition of shrinking cities, *i.e.*, 10% population loss or 1% annually, as recognized by
114 Oswalt & Rienets (2006), has been used to address the significance and put the results in
115 perspective.

116 **2.2. Risk of shrinkage**

117 Second, we looked through the lens of the probability of shrinkage for the future.
118 Demographic shrinkage needs a broader set of indicators than current demographic data, as it can
119 be a breaking point rather than a phenomenon following the current trend (Vermeulen et al.,
120 2016). A literature review led to the selection of Vermeulen et al. (2016) as a primary source
121 because it links demographic shrinkage and growth to spatial planning and policy. They
122 developed an understanding of this risk factor of regional shrinkage for the Netherlands based on
123 the agglomeration force of regions, and the question where to build and where not to build. Three
124 indicators were included in their work: current demographic shrinkage, ageing of the population
125 and average regional house prices.

126 The first indicator of current demographic shrinkage is derived from the knowledge that
127 shrinkage is more persistent than growth in the middle-long term and thus easier to predict
128 (Glaeser, 2011, Glaeser & Gyourko, 2005). Current shrinkage that started less than ten years ago
129 is an indicator for future shrinkage in the short term. Current trends, however, do not relate to
130 what is happening beyond the middle long-term, *i.e.*, after 20-30 years (Vermeulen et al., 2016).
131 In the long term, without external immigration, a large ageing population can be an indicator for

132 the risk of shrinkage, since a higher mortality rate than birth rate is one of the causes of
133 shrinkage (Vermeulen et al., 2016). Lastly, a regional house price lower than the national average
134 (or Flanders in our case) is an indicator for the attractiveness between regions: A high regional
135 housing price predicts external investment in additional housing, which can make the population
136 grow, while a low regional housing price indicates a region less attractive for investment, and a
137 stagnating population eventually shrinks (Vermeulen et al., 2016).

138 The combination of the respective data for these indicators in the region of Flanders
139 identifies locations with possible future shrinkage. Municipal demographic data for 2005-2015
140 (Statistiek Vlaanderen, 2015), municipal ageing profiles of the Study service of the Flemish
141 Government (Schockaert et al., 2016), and regional housing prices for Flanders included in
142 Vermeulen et al. (2016) reveal a risk of shrinkage. These layers were combined in graphic
143 software.

144 **2.3. Opinions on the spatial transformation of the region**

145 Most focus is put on the third lens. This lens contains an analysis of a broad range of
146 opinions of key informants and experts on the envisioned spatial transformation of Flanders. In
147 the analysis, the opinions are linked to an interpretation of demographic and urban shrinkage.
148 This lens aims to define the possible complexity of introducing demographic shrinkage in the
149 regions spatial practice.

150 Specifically, data was collected in two ways: media analysis and interviews. First,
151 opinion pieces with the tag 'betonstop', as the White Paper of the Spatial Policy Plan for
152 Flanders was more commonly known, were analyzed from three large newspapers in Flanders
153 (De Morgen, De Standaard and De Tijd) between the period of the 30th of November 2016 (the
154 day the white paper was approved by the Flemish government) and June 2017 (when the

155 publishing of reactions slowed down again). Additionally, the analysis includes opinions from
156 shorter articles beyond the selected timeframe and from other sources to the extent that they
157 added novel arguments. A total of 111 articles were found. From these, 28 articles were
158 extracted, containing 32 distinct opinions from the point of inhabitants, politicians, experts from
159 architecture, urban and landscape planning and real estate. These 32 opinions were then analyzed
160 and coded regarding the following: the perspective from which they were expressed (*e.g.* policy
161 maker, designer, inhabitant,...), whether the evaluation of the topic was neutral, positive or
162 negative, which arguments were put forward, and whether the planning-related complexities put
163 forward were linked to demographic and/or urban shrinkage.

164 Second, in parallel to the media analysis, interviews were conducted with key informants
165 from the areas with a high risk of shrinkage and experts related to sectors that could benefit from
166 a planning with shrinkage. This means both people with relevant, everyday experience, *i.e.*,
167 inhabitants or former inhabitants of peripheral places, as well as experts working in urban and
168 landscape planning are included. Interviewees were selected based on their complementary
169 experience with the national, provincial or local planning level and a balanced presence from
170 different areas in the region. Twelve unstructured interviews were held with (former) inhabitants
171 of peripheral places, four semi-structured interviews with spatial planners on different policy
172 levels, and informal interviews with experts working on the theme of open space and spatial
173 planning. Saturation point was reached at the end of 2017. All interviews were conducted on the
174 existence of shrinkage and the opportunities of shrinkage within Flanders.

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3. Results

3.1. Is there shrinking in a growing region? The demographic approach.

Flanders is a region experiencing overall growth (Schockaert et al., 2016). However, breaking down this growth into more specific sources identifies external migration as the leading cause of growth in the region in recent years (Schockaert et al., 2016). As for the age distribution, the group aged 65+ is growing faster, while the percentages of the group of aged 0-18 and aged 18-64 have already been declining the past years (plan.be, 2017) (fig. 1).

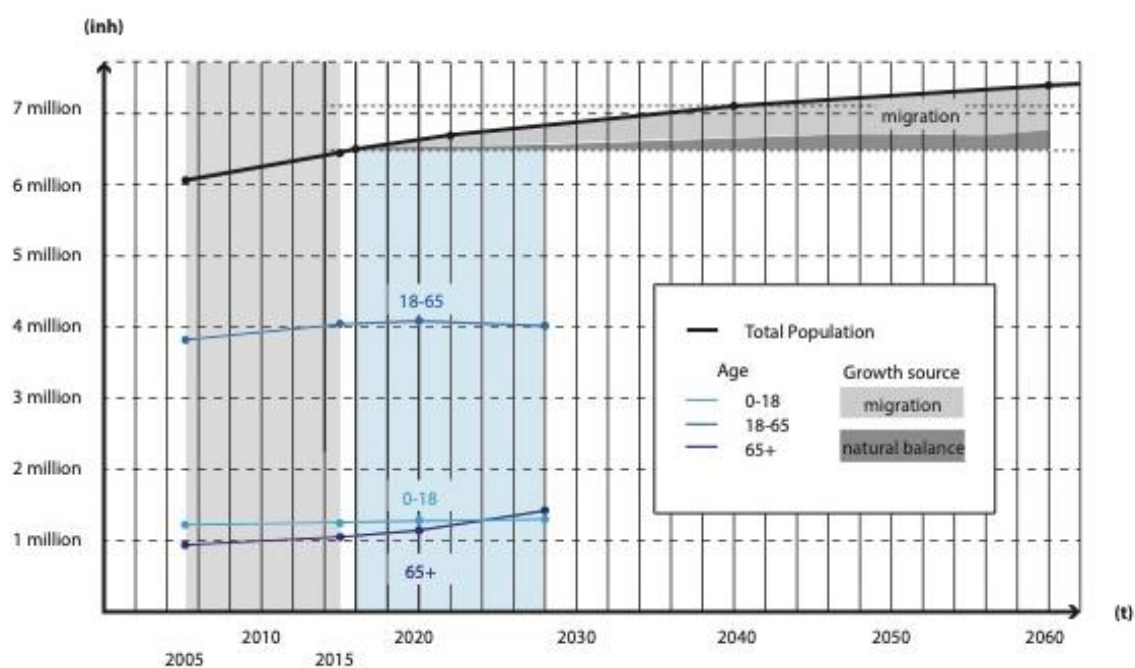
However, more fine-scaled data analysis reveals that net shrinkage is also present in the region. Crols et al. (2017) present the highest resolution insights into demographic changes. Their research shows a pattern for 2001-2013, where growth and shrinkage alternate on a small scale, almost between neighborhoods (Crols et al., 2017: fig. 3b)¹.

For our timeframe (2005–2015) net demographic shrinkage is occurring in 64 out of the 308 municipalities (statistieken.vlaanderen.be, 2019) (fig. 2). Zooming in to the scale of sub-municipalities shows a different, more dispersed pattern of shrinkage. Taking the region of the Westhoek as an example, i.e., the most peripheral and rural region in the west, 5 out of 18 municipalities underwent a population decline during the period 2005–2015 (Province of West-Flanders, 2015) (fig. 2). The region consists of 90 sub-municipalities, 40 of which experienced population loss between 2005 and 2015 (fig 3) and for 5 out of these 40 this was more than 1% annually.

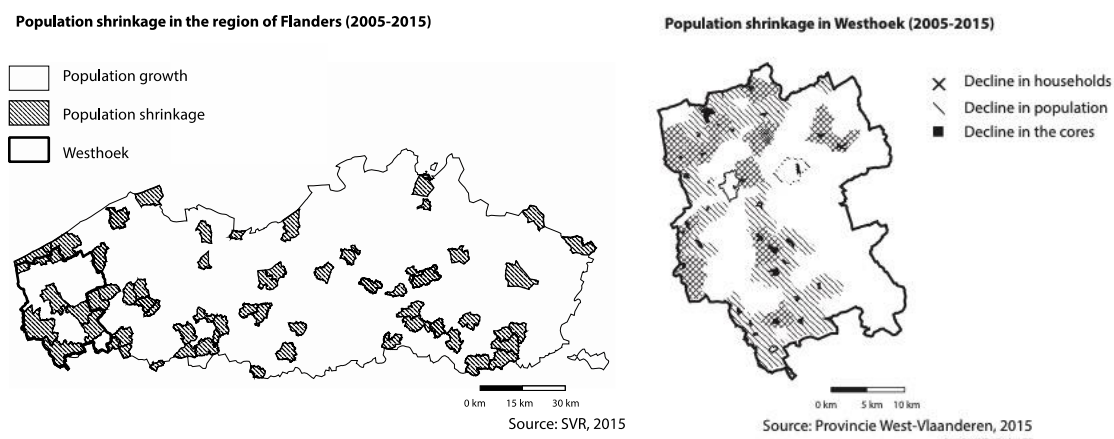
¹ Their maps are based on the population difference maps for a 300m resolution for 1986-2001 and 2001-2013. One should notice, for the period 1986-2001 (fig 3a of Crols et al., 2017) demographic decline is much more clustered in inner cities and cores, while growth is found in the ongoing suburbanization. This is a much different pattern than more recent years where “*decrease in population is mostly limited to rural areas, with some neighborhoods at the edges of cities as exceptions.*” (Crols et al., 2017).

195 Lastly, the evolution of households (fig. 3) provides insight into whether net demographic
 196 shrinkage can be spatially linked to a thinning of households or a vacancy of housing (Vermeulen
 197 et al., 2016:110). Fifteen out of 40 shrinking sub-municipalities have faced a decline in
 198 households, so the decline in households is considerably less than the net demographic
 199 population decline, which indicates a general trend of thinning of household size. On a more
 200 local scale of sub-municipalities (fig. 3), as with the net demographic statistics, household
 201 shrinkage is also clustered in some areas of the territory.

202 In summary, the existence of demographic shrinkage appears when considering more
 203 specific and more local data. Although overall demographic shrinkage is small in the region of
 204 Flanders, it is more widespread than regional, and even municipal statistics suggest. In certain
 205 places, it is clustered significantly, both for net demographic population and for households.



206
 207 *Figure 1. More specific demographic data and prognoses for the region of Flanders*
 208 *(modified from: plan.be, 2017; Statistiek Vlaanderen, 2015)*



209

210 *Figure 2. Shrinkage in the municipalities of the region of Flanders (source: Statistiek*
 211 *Vlaanderen, 2015)*

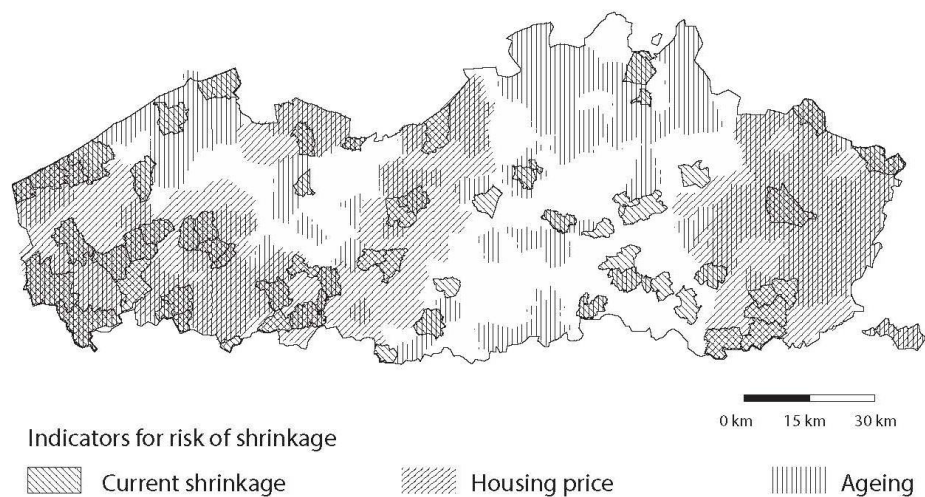
212 *Figure 3. Shrinkage in the sub-municipalities of the Westhoek (source: Provincie of West-*
 213 *Vlaanderen, 2015)*

214 **3.2. Future trends: Indicators for the risk of shrinkage.**

215 Demographers of the Flemish government have calculated that due to the ageing
 216 population and declining birth rate, without external migration, the entire region would shrink
 217 from 2048 onwards. This shrinkage would last until 2056 (plan.be, 2018). However, leaving out
 218 migration, most municipalities will be affected by a negative natural balance before this time
 219 (Schockaert et al., 2016:16). In the study of the Study service of the Flemish Government,
 220 municipalities have been given different profiles. Three categories of municipalities are included
 221 in the layer 'ageing' in Fig. 4: (i) municipalities with a negative natural and migration balance
 222 today, (ii) municipalities with a risk of shrinkage on the short term that face a strong early
 223 ageing, i.e., with a relatively high percentage of the age 80+ and low percentage of 20 to 39 years
 224 old, (iii) municipalities with a strong late ageing that have a relatively high percentage of the age

225 65+. As for house prices in Flanders, the calculation of Vermeulen et al. (2016:110, 114) marks
 226 almost half of the territory with a real risk of shrinkage.

Risk of Shrinkage in the region of Flanders



227
 228 *Fig 4. Risk of shrinkage: current demographic shrinkage 2005-2015 (Statistiek*
 229 *Vlaanderen, 2015), risk of shrinkage related to ageing on the long term (Schockaert et al.,*
 230 *2016:16) and lower house prices compared to the nation-wide average (Vermeulen et al., 2016:*
 231 *114).*

232
 233 According to these indicators, the majority of the region of Flanders has a risk of
 234 shrinkage (fig. 4). Depending on the location, there are different reasons for this risk of
 235 shrinkage. A threefold risk of shrinkage covers large parts of the territory in the east and the west.
 236 These areas at risk are predominately peripheral but not exclusively. The risk of shrinkage
 237 appears in the short term because of current shrinkage and house prices, and in the middle to
 238 long term because of ageing (Vermeulen et al., 2016, Schockaert et al., 2016).

239 3.3. The public debate on the spatial future of Flanders: a meaning for shrinkage?

240 At the end of 2016, the White Paper of the Spatial Policy Plan for Flanders introduced a
 241 series of principles for the region. In its English brochure, the Flemish Government explicitly
 242 states: “*In 2040 we will cease taking up any more open space for building new houses, offices
 243 and facilities. Additional appropriation of space will fall to 0 hectares per day. Instead, we will
 244 make better use of well-situated places in our cities and villages. The new basic principle? Doing
 245 more with less space. Fortunately, there are plenty of opportunities waiting to be seized.*”
 246 (Departement Ruimte Vlaanderen, 2017). In the public discussion that followed, various
 247 opinions were expressed by different stakeholders, which we analyzed about how this related to
 248 the issue of demographic shrinkage. In other words, we tried to map the different meanings of
 249 demographic shrinkage in this context (see table 1).

250 Table 1

251 *Collected opinions on the spatial future of Flanders*

<u>Who</u>	<u># opinions</u>	<u>Opinion on the plan for the spatial future of the region</u>	<u>The existence of shrinkage = a positive influence (+) / a negative influence (-) / neutral (/)</u>
1. Minister of Environment, Agriculture and Nature	5 opinions from articles	Initiator of the Spatial Policy framework addressing strategic places for demographic growth and advocating stronger open space networks Tools: transfer of development rights	Neutral to positive: No explicit mention of shrinkage. Stronger open space networks might benefit from a condition of shrinkage when demographic decline results in the possibility to tear down badly located buildings and a lower user intensity.
2. Planning experts	5 articles 4 interviews	A concrete stop cannot happen fast enough, but it should be with a focus	Neutral: shrinkage deserves action to overcome the negative aspects.

	+ informal interviews	on inclusive higher densities.	
3. Architects and urban designers	5 articles	<p>Plea for higher densities in strategic places and creating more ‘people-free’ spaces, advocating mobility of people towards places with higher densities (by Government Architect, 2016)</p> <p>Advocating higher quality of the built patrimony (Independent architect)</p> <p>Tools: higher taxes on housing in more peripheral locations</p>	<p>Positive: Shrinkage – or the internal movement of people towards denser cores – as a necessity for a more sustainable urban structure / more space for biodiversity</p> <p>Shrinkage as a phenomenon that leads to vacancy – allows you to tear down low-quality buildings. Strategic shrinkage could reduce the cost for infrastructure (roads, electricity, water, gas)</p> <p>Shrinkage might be mainly an exodus of the lower incomes from the more peripheral locations?</p>
4. Inhabitant of the ‘countryside’	5 articles 12 interviews	Addressing the qualities of low-density housing environments: quietness, presence of nature, proximity to places with biodiversity and for food production, air quality, availability of space.	Neutral: Shrinkage – or lower population densities - reinforces qualities such as quietness, presence of nature.
5. Mayors from mid-size cities	4 opinions from articles	One stresses the need for appropriate tools, another one stresses that they are already limiting building rights.	Depends: necessity for right tools. The city that already limits building rights has faced shrinkage in their inner city in recent years, limiting the process of suburbanization benefits their center.
6. Mayors and policy makers from two peripheral regions	6 articles + Informal interviews	They share a fear for a vicious circle regarding urban decline with limited external migration.	Negative: Shrinkage = negative aspects of population decline

7.	Owners of badly located unbuilt land	2 articles	We will build while we still can.	Neutral: Shrinkage is something that you can overcome by constructing more
8.	Nature and water management experts	4 articles + Informal interviews	Tear down badly located buildings.	Positive: Shrinkage reduces problems of the physical environment

252 The existence of shrinkage relates in a positive, negative or neutral way to the opinions on
253 the regional future. The first meaning for shrinkage arrives closest at problematizing urban, not
254 just demographic decline (Haase et al., 2013). The six mayors from the more peripheral regions
255 (opinion 6) fear that their lack of strategic places for demographic growth will trigger aspects of
256 urban decline. These aspects include economic decline and settlement system change as a result
257 of a decrease in population densities. These municipalities, and their region in general, already
258 face an ageing population, as well as a widespread, though small, population decline in many
259 places. With a global tendency for population growth to occur in cities and less in places with
260 lower population densities, these mayors witness a decrease in livability for their municipalities.
261 They fear negative side-effects of a spatial policy plan if the plan were to reinforce migration
262 towards more densely populated and more central areas. The informal interviews from another
263 peripheral province support that this concern is not unique to this region but is also an issue in
264 other places with low densities. Moreover, the four questioned planning experts acknowledge
265 they could imagine demographic shrinkage as a growing concern for some places (opinion 2).

266 Second, while shrinkage is explained as a problem for livability in more peripheral regions,
267 many voices praise the qualities of the living environment that are reinforced in a scenario of
268 shrinkage (opinion 4). The opinions from inhabitants of peripheral places, in the public press and
269 from the interviews, address the livability in terms of space, quietness, air quality or proximity to

270 nature. These arguments contrast with those of inhabitants of places with a high population
271 density. They praise the proximity of urban functions such as services, culture, work
272 opportunities, and the sustainable model to accommodate growth. The interviews support the
273 differing viewpoints and the attractiveness of different qualities. Some of the inhabitants of more
274 peripheral places moved away from family members to denser, more centralized places. Those
275 that stayed mostly benefit from the space that was opened up. As long as maintenance and
276 mobility are no issue, the free space is used for various purposes, from storage to a sauna or
277 hobby room, to a bed and breakfast as an extra source of income.

278 Another interpretation of shrinkage is one of strategic shrinkage in the function of growth.
279 Some experts, like the Flemish Government Architect (opinion 3), plead for an active migration
280 towards cities to optimize the spatial efficiency in planning through more cost-effective
281 infrastructure, less traffic congestion, the creation of more space for water and biodiversity and
282 meeting the responsibilities for the global climate agreement. A migration towards more densely
283 populated areas could be a way to gain spatial quality in the places that are left behind. This
284 could be the case if the region of Flanders invests in a reconversion of low-quality buildings in
285 favor of models with higher densities, or in the ‘defragmentation’ of open space, as the
286 Government Architect calls it. This opinion is shared by other designers (opinion 3) and is
287 especially supported by experts working in nature and water management (opinion 8). The
288 opportunity for demolition, however, only occurs when demographic shrinkage also involves a
289 decline in households. A decline in households, which results in vacancy, can enable the removal
290 of poorly located buildings (for example in flood-prone zones), or return the land to non-human
291 uses. In this way, biodiversity can be reinforced, or food production expanded. This opinion is
292 nuanced, however, by some mayors of larger cities and opinions from sociology and spatial

293 planning (opinion 2). These changes in population densities and a more resilient spatial
294 configuration, need on the one hand extra investment in more livable cities and social policy to
295 retain inhabitants in denser centers, and on the other hand, support for the areas where population
296 densities are declining.

297 Lastly, demographic shrinkage is understood as something that one can overcome. Many
298 opinions in the debate point out that the transformation towards the goal of this resilient urban
299 structure needs the right policy and planning instruments. In their opinions, some people intend
300 to refine the plan. They propose tools or share their experiences of how they are already evolving
301 in the 'right' direction, such as experimenting with a transfer of development rights. For instance,
302 a midsize city mayor from the west of the region states that their municipality has already started
303 cancelling building rights on its outskirts. This cancellation is a measure to attract more people to
304 the city center (opinion 5). However, installing the right instruments takes time. This time in-
305 between can also be used to increase construction while it is still permitted (opinion 7). This
306 opinion is mostly expressed by building promoters or individual homeowners. In this
307 perspective, construction is seen as the only way to avoid a loss of property value.

308 The opinions on the future of the region show an underlying need to include the concept of
309 demographic shrinkage in spatial policy and planning, both for its benefits as to overcome
310 possible negative aspects. Demographic shrinkage can have different interpretations. It is a
311 growing concern for local policy levels, yet, it also has advantages. Fewer inhabitants could
312 increase some of the qualities of living environments addressed by many of the collected
313 opinions, and extra space could stimulate the imagination and reorganization of some
314 individuals. Including strategic demographic shrinkage in the function of a more sustainable
315 growth and a spatial reorganization, however, still requires vision and practical support. The

316 opinions underline the fact that the practice of anticipating on a possible decline in the
 317 population remains a rather vague terrain.

318 **3.4. Main findings**

319 We explored three lenses to investigate the concept of shrinkage within Flanders: through
 320 demographic data, through indicators for the risk of shrinkage and through opinions on the future
 321 of our case region. Before continuing the discussion, the table below summarizes the main
 322 findings.

323 Table 2

324 *A summary of the main findings as revealed through the three lenses:*

Lens	Main findings
1 Current demographic data	Shrinkage is present in demographic statistics: <ul style="list-style-type: none"> - as a regionwide declining workforce (age 18-65) and, on the long term, as a regionwide natural decline because of an ageing population and a low birth rate. - on more local scales shrinkage becomes more widespread and clustered. Mostly it is net demographic shrinkage, not of households. Sometimes it is also a shrinkage of households.
2 Risk of shrinkage	Shrinkage: <ul style="list-style-type: none"> - can appear in the future in the majority of the territory on the short, medium and/or long term. - has the highest risk in the peripheral territories, but the risk covers also more central territories.
3 Opinions on the future spatial transformation of the region	Shrinkage, in our case, has multiple meanings. It is a negative influence: <ul style="list-style-type: none"> - when it threatens the number of services, public transport, affordability of infrastructure. - when the awareness for the risk of shrinkage results in increased construction in places that do not contribute to a more resilient urban structure. It is a positive influence: <ul style="list-style-type: none"> - that enhances certain qualities of living environments, such as quietness or the presence of nature. Strategic shrinkage is an enrichment for sustainable growth: <ul style="list-style-type: none"> - to meet the goals for more sustainable urbanization. - to tear down badly located, low quality and expensive built space.

-
- to reconstruct open space, for example in flood-prone zones, for food production, recreation or biodiversity.
-

325

326

4. Discussion

327 The present study reveals that even though shrinkage seems to be absent at most levels of

328 policy and planning, demographic shrinkage within this region exists and it has the potential to

329 become more important in the future. In other words, it could be meaningful for the spatial

330 practice of the region. This knowledge strengthens the view that demographic shrinkage is a

331 concept that, even in a growing region, should receive attention from disciplines involved in a

332 spatial practice.

4.1. Different kinds of shrinkage

334 The region of Flanders has a specific sort of shrinkage, which distinguishes itself from what

335 is understood as a shrinking city (Haase et al., 2013, Oswalt & Rienets, 2006) or a shrinking

336 region (Rijksoverheid Nederland, 2018). Here, the criterion of demographic decline of 10% of

337 inhabitants, or more than 1% annually, which shrinking cities and shrinking regions share

338 (Oswalt & Rienets, 2006:156, Rijksoverheid Nederland, 2018), is only applicable at the level of

339 sub-municipalities instead of entire cities or regions. Thus, negative aspects of shrinkage will not

340 affect the region, but the sub-municipalities, and most likely neighborhoods. Therefore, this

341 concept of demographic shrinkage in growth relates more to the urban theories on the livability

342 of neighborhoods rather than the regional spatial planning discourse that is common in shrinking

343 cities and regions.

344 However, the risk of shrinkage included in this study does reveal a scale, at least in the more

345 peripheral territories, that is similar to those of shrinking regions (Rijksoverheid Nederland,

346 2018). In the Netherlands, this regional risk of shrinkage is included in the national policy

347 program that addresses population decline for the so-called ‘anticipation regions’. These are
348 regions with a smaller population decline of 4% by 2040, but they can benefit from similar
349 approaches as the shrinking regions (Rijksoverheid Nederland, 2018). By including them in this
350 program, it is possible to anticipate the negative aspects of population decline before shrinkage
351 becomes problematic. This study, where it concerns the opinions of the more peripheral
352 territories, supports that even in the absence of significant shrinkage on the larger scale levels,
353 there can be larger territories that require a planning that is different than the standard practices
354 of growth. For this larger context, introducing the concept of demographic shrinkage adds a
355 speculative aspect to its spatial practice. In places with a risk of shrinkage, it is more likely for
356 the phenomenon to appear, but it remains unclear about the specific when and where. Including
357 this uncertainty is the main challenge for a planning and a policy for growth.

358 On the positive side, the scale on which demographic shrinkage will or will not appear, does
359 not necessarily affect the effectiveness of including demographic shrinkage in a context of
360 growth. The effects of land-use change from built space to open space, for instance on the value
361 of biodiversity, can already be significant with the reconversion of small parcels of land (Frazier
362 & Bagchi-Sen, 2015). For shrinking cities and regions, the focus on open space has been a
363 solution out of necessity to restructure large territories, and a means to integrate a large
364 complexity of societal challenges in strategic spatial plans (Notten, 2017, Frazier & Bagchi-Sen,
365 2015, Detroit Future City, 2012, Oswalt, 2005). The concept of shrinkage in growth will be much
366 less structural for strategic plans than in a context of overall shrinkage. The impact of including
367 shrinkage in growth and the benefits for the value of open space will much more depend on a
368 strategy that allows actions to take place on a small scale, for small parcels of land when the
369 opportunity arises.

370 **4.2. Using the opportunities of shrinkage in growth?**

371 Together with research on shrinking cities and regions, this study links demographic
372 shrinkage and its demolition potential to a change in land use in favor of open space functions.
373 One of the first concerns when linking demographic shrinkage to demolition of the built space is
374 the costs of demolition. In shrinking cities, for instance, in the US, the purchasing costs for land
375 are low due to tax foreclosures and public auctions (Frazier & Bagchi-Sen, 2015). Converting
376 properties from private to more common purposes becomes more affordable in this case. In our
377 case, the difference between property prices in places with a high risk of shrinkage and the
378 national average is rather small compared to property prices in shrinking cities or regions. Yet, a
379 condition of shrinkage and growth has an advantage that shrinking cities, i.e., where the whole
380 system is shrinking, do not necessarily have. The additional growth in one place could be linked
381 in a monetary way to shrinkage in another place, for example, through ecosystem services
382 (Haase et al., 2014). And eventually, if monetized, can create a budget for demolition. In the
383 case of ecosystem services, this requires adapted methods for the analysis of the ecosystem
384 service potential. Not only will these methods have to include the value of, among others,
385 biodiversity, water storage, food production or recreation, of the existing open space, but also of
386 the currently built space (Frazier & Bagchi-Sen, 2015).

387 However, to identify the opportunities of demographic shrinkage, as opposed to the risks,
388 different data should be consulted than those used in this study. Further research should go into
389 creating a more refined understanding of shrinkage and the risk of shrinkage and its impact on
390 spatial practice. The more specific and more local the demographic data and the data consulted to
391 indicate the risk of shrinkage, the better the impact and possible scale of negative consequences
392 of demographic shrinkage can be revealed. To also trace the opportunities, precise data starting

393 from the level of parcels, such as vacancy, costs for demolition and potential value for ecosystem
394 services should be added. Developing a more refined analysis should make it possible to
395 differentiate the responses to shrinkage and the risk of shrinkage in growth.

396 **4.3. A systemic relation of shrinkage and growth**

397 Another aspect that merits further study is related to understanding the link between
398 shrinkage and growth.

399 In this study, the shrinkage that becomes meaningful for a spatial practice in growth and the
400 overall demographic growth appear on different scale levels. The relationship between different
401 scales in the process of population losses has not often been the subject in the discourse of
402 shrinking cities (Bernt, 2016). For demographic shrinkage, generally accepted is the
403 oversimplification of “*crisis = outmigration = population loss = vacancies, impoverishment,*
404 *fiscal stress... = shrinkage*” (Bernt, 2016). By connecting shrinkage on the more local levels and
405 growth on larger planning and policy levels, more diverse meanings for shrinkage are found in
406 this study.

407 Yet, in practice, when looking into policy responses in our case, an awareness of the risk of
408 shrinkage leads to only one response, and only on the local level, namely avoiding shrinkage by
409 constructing more housing and attracting more inhabitants (Schockaert et al., 2016). At its base,
410 there is the same oversimplification that population loss equals crisis and impoverishment. But it
411 is unsure that constructing more housing eventually avoids shrinkage. The demand for housing
412 and the demography of a place do not always follow the housing availability (Vermeulen et al.,
413 2016). And constructing more does not necessarily add to the qualities of an environment.

414 The link between shrinkage and growth should receive a systemic approach. Theoretically,
415 one could plan for and with demographic data. Especially for a region in which growth is mainly

416 derived from external migration, as is the case in Flanders, it would become possible to manage
417 population growth together with the decline (Davoudi et al., 2010). In reality, even with place
418 marketing, it is not always possible to sufficiently influence and manage these settlement
419 patterns towards the desired outcome (Hospers, 2011). What this study has identified, one could
420 argue, is a version of the center-periphery phenomenon that has been widely reported and
421 examined over the past 50 years (Friedmann, 1967 and onwards, consulted Darwent, 1969).
422 More specifically, a version that needs advancement from the perspective of the periphery, rather
423 than from the center. Nowadays, the risks and disbenefits of shrinkage are most likely to be
424 associated with areas that already have lower levels of social and cultural capital, while the
425 benefits are more important for the region as a whole. Further study could focus on describing
426 the effects of migration patterns, housing prices or available services on values in terms of space,
427 quietness, air quality or proximity to nature that are attributed to more peripheral places, from the
428 perspective the periphery.

429 Developing a systemic understanding of shrinkage and the periphery in relation to growth
430 could help the implementation of the concept of shrinkage for policy and planning in growth.

431

432

5. Conclusion

433 This study concludes that our case of a growing region has a specific sort of demographic
434 shrinkage that distinguishes itself from that of shrinking cities or regions. Demographic
435 shrinkage is small according to the available statistics. However, the phenomenon could be much
436 more widespread than statistics on a municipal level suggest. It is clustered on a smaller scale,
437 such as that of sub-municipalities or neighborhoods. In a case where growth is mainly derived
438 from external migration and the population is ageing, demographic shrinkage can be of use to

439 spatial practice in the short, middle and long term. Indicators for the risk of shrinkage can reveal
440 a much different image of places where shrinkage could be a future scenario.

441 Demographic shrinkage in growth comes with its specific opportunities precisely because it
442 can be linked to growth. Occasional demographic shrinkage can be an advantage to the demand
443 for more open space, for instance. And when the risk of shrinkage is high on a regional scale,
444 also overcoming the negative aspects of population decline adds to the complexity. The existence
445 of different densities creates diversity in living environments with different qualities. Shrinkage
446 could reinforce qualities such as quietness or the availability of nature. Strategic shrinkage can
447 also be advantageous to growth. Creating possibilities to tear down badly located and low-quality
448 built space, or to reconstruct open space, for example in flood-prone zones, for food production,
449 recreation or biodiversity.

450 The concept of shrinkage in growth requires an understanding of the systemic relations
451 on different scale levels and an integrated approach for transformation. Even without explicit
452 spatial planning or policy on demographic or urban shrinkage, a spatial practice focussed on
453 growth could benefit from a better understanding of the indicators of demographic change and
454 further development of the indicators of the risk of shrinkage. Indicators for the risk of shrinkage
455 should be able to point out the opportunities and strategic value for demolition, as well as
456 indicate the negative impact of future population decline. Shrinkage in growth provides the
457 opportunity for planning to involve the benefits of demographic shrinkage in a context of
458 demographic growth before it becomes problematic and causes urban decline. The main question
459 that remains is how to effectively introduce these results into the policy debate and in spatial
460 practice.

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