Influences on citizens’ policy preferences for shrinking cities: a case study of four Portuguese cities

Thomas Panagopoulos*, Maria Helena Guimarães and Ana Paula Barreira

CIEO – Research Centre for Spatial and Organizational Dynamics (CIEO), University of Algarve, Faro, Portugal

(Received 1 September 2014; accepted 18 January 2015)

Population decline in cities (‘shrinking cities’) is an increasing international phenomenon. The purpose of this study was to determine citizens’ policy preferences for tackling shrinkage and to ascertain whether different causes of shrinkage lead to different preferences, on the basis of which we identify viable urban regeneration strategies to implement in Portugal’s shrinking cities. This information was obtained by a face-to-face questionnaire survey of 701 residents in four case study cities, who were asked to rank five types of policy: economic revival, safety and accessibility, public services, building interventions, and environmental actions. The results show no differences between cities regarding the policy identified by residents as being most important (economic revival). However, differences between cities in the second and third most important policies were observed and are linked to the particularities of shrinkage in each city. Furthermore, we found a strong link between the ranking of the policies and the demographic and socioeconomic profiles of respondents, which also differ between cities. Younger respondents ranked economic revival higher, whereas older residents ranked safety and accessibility higher. Building rehabilitation was ranked as important mostly by lower-income residents, whereas improvement in public services was identified as being important by the residents of smaller cities in the interior of the country. Giving voice to citizens and allowing them input into policy options appears to be of value for defining the most appropriate policies to apply in shrinking cities.

Keywords: citizens’ preferences; policy and planning strategies; shrinking cities; deindustrialization; suburbanization; satellite effect; climate effects; Portugal

Introduction

The process of globalization has concentrated resources, capital and intellectual assets in megacities. Simultaneously, other cities are experiencing an outflow of people, capital and resources, and host low levels of innovation (Martinez-Fernandez, Audirac, Fol, & Cunningham-Sabot, 2012). According to Lindsey (2007), one in four large cities underwent population loss between 1990 and 2000. Cities declining in population is not a new phenomenon (Beauregard, 2009), with shrinkage having occurred historically during periods of economic crisis, systemic transformation, war, epidemic, natural hazard and climate change (Rieniets, 2009).

The idea of bringing residents of European countries into the political decision-making process has been increasingly encouraged by the European Commission, and it

*Corresponding author. Email: tpanago@ualg.pt

© 2015 The Author(s). Published by Taylor & Francis. This is an Open Access article distributed under the terms of the Creative Commons Attribution License http://creativecommons.org/licenses/by/4.0/, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.
has been put into practice in some shrinking cities (Hospers, 2014; Rink & Haase, 2012), although the particular approaches taken vary. In Northern European countries, civic participation is a common practice, whereas in some Southern European countries public involvement is at an early stage. The existence of centralized governments and long dictatorships contribute to explaining this difference. Moreover, the decline in urban population figures affected Northern European countries earlier than it affected Southern countries (Cheshire, 1995; Hoekveld, 2014); this is exemplified in the case of Portugal, where the topic remains taboo for the majority of politicians (Panagopoulos & Barreira, 2012).

Citizens and local governments commonly show different responses to concerns such as social cohesion, urban regeneration, economic growth and competition. New planning orientations that consider citizens’ preferences and consequent policy guidelines can ensure that political decision-making is adapted to changes in citizens’ needs, while also guaranteeing financial sustainability and socio-economic equitability. As such, the definition of these guidelines needs to be based on community involvement, applying in practice the relevant European orientations to approximate citizens’ decisions and identifying policies that ensure the sustainability of cities based on their unique characteristics and spirit. The inhabitants of cities know at first hand the strengths and weakness of the places in which they live, and are therefore in a privileged position to identify the particular competencies of a territory and how these can be advantageously transformed to attract new businesses as well as the traditional characteristics that can be used as a basis for regeneration. This approach embodies the concept that popular participation gives expression to how, where and whether priorities are established (Kantor & Savitch, 2005). A common policy for declining cities is not feasible (Haase, Rink, Grossmann, Bernt, & Mykhnenko, 2014; Turok, 2004), and the uniqueness of each city requires a bottom-up approach to policy (Haase, Bernt, Großmann, Mykhnenko, & Rink, 2013; Weichmann & Pallagst, 2012).

The methodology used in the present study incorporated European guidelines by consulting, through a survey, citizens of shrinking cities to identify their preferred policies for dealing with population decline. The focus of the paper is on population decline being viewed as an indicator of urban decline, similar to the approaches of Beauregard (2009) and Turok and Mykhnenko (2007). The analysis is extended to consider other indicators that allow the different causes of shrinkage in four Portuguese cities to be identified, and policies to be assessed with respect to the particularities of the studied cases.

The aims of this work were twofold: (1) to identify the most preferred policies of citizens living in four of Portugal’s shrinking cities; and (2) to assess whether different causes of shrinkage and citizens’ demographic/socioeconomic profiles influence the choice of policies.

Literature review

Demographic decline has gained increasing attention as the phenomenon spreads to a larger number of countries (Oswald & Rieniets, 2007; Sousa, 2010), regions (Hospers, 2011; Panagopoulos & Barreira, 2012), and cities (Oswald & Rieniets, 2006; Turok & Mykhnenko, 2007; Wiechmann, 2008). The decline is the result of two major factors: an increase in human life expectancy (European Commission, 2010; Hollbach-Grömig & Trapp, 2006), and a reduction in the number of new-born below the generation replacement level (Klingholtz, 2009; OECD, 2003).
The topic of urban population loss is not new, and was approached initially as being part of the life cycle of cities, in which periods of both urbanization and counter-urbanization were experienced (Berry, 1977; Rust, 1975; van den Berg, Drewett, Klaassen, Rossi, & Vijverberg, 1982). Urban revitalization promoted in response to decline improves the attractiveness of cities for inhabitants, businesses, visitors and investors, thus reversing the process of decline. The debate in Europe around population decline originated in the Anglo-Saxon school, which developed after the Second World War mainly as a consequence of the economic transformations arising from deindustrialization. The concept of shrinkage was introduced during the 1980s by the German school (Hoekveld, 2014). With respect to US cities that have lost population, Beauregard (2009) applied the word ‘shrinkage’ only to the period between 1980 and 2000, distinguishing them from ‘aberrant’ and ‘declining’ cities that faced reductions in inhabitants during 1820–1920 and 1950–80, respectively. Other terms used previously in the literature include decline, decay, abandonment, suburbanization, urban crisis and demographic change (Haase et al., 2014).

Since the 1980s, empirical observations have questioned the life cycle view on the basis that a continuum decline has been extensively found (Cheshire, 1995; Metzer, 2000), giving rise to a distinction between episodic and continuous shrinkage or between long-term, medium-term and recent shrinkage (Mykhnenko & Turok, 2008; Turok & Mykhnenko, 2007).

Major urban decline was first experienced in Northern European countries from the 1960s through to the early 1980s as deindustrialization, suburbanization and urban sprawl phenomena led to cities’ cores becoming increasingly depleted, subsequently reaching the Southern countries that at that time were still undergoing centralization. In Portugal, for instance, shrinkage due to suburbanization and deindustrialization occurred only after the 1980s and the 1990s, respectively. Observations of population loss since the 1980s in Northern European countries show that several distinct situations can co-exist: cities recentralizing, cities decentralizing and declining, and cities declining yet simultaneously centralizing (Cheshire, 1995).

Hospers (2014) grouped the feasible responses to shrinkage into four policy types as part of an evolving process: trivializing, countering, accepting and utilizing. Given the time lag shown for shrinkage to reach the Southern European countries, policies there are still focused mainly on the first two policy phases whereas many Northern European countries are characterized by the third and fourth phases. Portugal is no exception in this regard. Apart from a small number of inland municipalities that promote policies oriented to regaining or stabilizing population, local governments do not recognize shrinkage and avoid approaching the issue (Panagopoulos & Barreira, 2012).

Policies oriented to tackling shrinkage are predominantly top-down oriented (e.g., Elzerman & Bontje, 2015, for German and Dutch cases; and Hollander & Németh, 2011, for US cases). Policies in which a ‘one size fits all’ does not exist (Haase et al., 2014; Turok, 2004) with respect to cities that are losing inhabitants and undergoing decline in economic activity, given the unique and specific characteristics of these cities (Haase et al., 2013; Wiechmann & Pallagst, 2012), means a bottom-up approach to policy is required (Kantor & Savitch, 2005).

Despite the general tendency for centralized solutions, there are some good examples of public participation in the shrinking cities of Europe, as discussed by Hospers (2014), namely, in Leipzig (Germany), Liverpool (UK), and the Kerkrade (Netherlands), which exemplify the European principle of subsidiarity. However, the way in which civic engagement is experienced in Northern European countries differs from that
observed in Southern European countries, as well as differing between Western European and Eastern European countries. Rink and Haase (2012) showed this with respect to three European countries, in which public participation took different forms such as protests (Poland), the constitution of urban housing associations (Germany), and the activation of focus groups involving non-governmental organizations (Italy). Mayors have also played an important role in setting policies and in strengthening cities, as in the case of Lille (France) (Hoekveld, 2014). Only recently have citizens in Portugal been brought into public decision-making, and even so, public participation has been confined to particular themes, related mostly to local budgeting (e.g., Alves & Allegretti, 2012; Costa, 2013). Moreover, given the general low level of public participation, a result of the long tradition of top-down policies adopted in Portugal, most studies of citizens’ preferences have used surveys or group meetings (e.g., Guimarães et al., 2014; Vasconcelos, 2007; Videira, Antunes, & Santos, 2009, for environmental issues).

In addition to the demographic transitions referred to above, several other causes contribute to explaining population decline in cities. The recommended policies differ according to the various causes of this shrinkage, but all cities need to develop policies that are oriented to solving segregation, ageing, social justice and equity problems (Cortese, Haase, Grossmann, & Ticha, 2014; Hollander & Németh, 2011), because it is the underprivileged groups in society that tend to stay in shrinking cities, given their lack of resources to move out (Strohmeier & Bader, 2004). In the present study, we focus on deindustrialization, suburbanization, the satellite effect and climate change as causes of shrinkage, as discussed in turn below.

Cities that faced substantial deindustrialization resulting from post-Fordist transformation show brownfield sites surrounded by vacant houses (Friedrichs, 1993; Oswalt, 2005), and approaches to dealing with these buildings range from demolition to reutilization. A way of coping with this kind of abandonment is to promote home ownership as a tool for avoiding the degradation of property and neighbourhoods (Friedrichs & Blasius, 2009). Furthermore, cities can try to diversify their industrial base in order to improve their resilience (Bailey & Cowling, 2011).

Suburbanization occurs when households choose to live in areas surrounding the city centre in order to find either more spacious homes or affordable houses, leaving the city’s core with fewer inhabitants (Hesse, 2006). The process of reversion (i.e., a regaining of inhabitants) depends on the use of taxes (Bento, Franco, & Kaffine, 2011), regulation measures (Gabriel, Faria, & Moglen, 2006), or a revitalization of the cities’ cores (Kauko, 2011).

A satellite effect occurs when a more appealing city is located close to another city that either serves as a dormitory or offers fewer facilities, such as higher-education facilities or health services, which impels residents to search for the most equipped city (Merrilees, Miller, & Herington, 2013; van den Berg et al., 1982). This process is a mode of counter-urbanization, as are suburbanization and urban sprawl, but has as its distinctive feature the separation of the cities, and therefore does not involve the extension of an aggregating metropolis. In this case, the abandonment of property is evenly distributed, meaning that the relevant policies are those that attract economic activity into the city to avoid the number of inhabitants dropping below a threshold level from which the city would be unlikely to recover (Stabler & Olfert, 2002), as well as those that encourage the provision of good schools (Eppele, Gordon, & Sieg, 2010).

Shrinkage resulting from climate change occurs when out-migration is motivated by harsher weather conditions (Rappaport, 2007). In these circumstances, policies aiming to mitigate the consequences of such weather are prevalent, such as policies on greening
and gardening (Comstock et al., 2010) or on the use of vacant land for agricultural purposes (Mallach, 2010).

In any case, the preferred policies of citizens for a city are not static and evolve as the composition of population changes. Whereas young couples tend to value good schools and kindergartens and access to jobs (Montén & Thum, 2010), older inhabitants are more concerned with healthcare services and safety (Abbott & Sapsford, 2005). However, even the elderly can prioritize policies oriented to the youngest sectors of society if they are close to their children who are unemployed (Rangel, 2003) or are closely involved with grandchildren (Gradstein & Kaganovich, 2004). Age has a positive influence on residents’ assessment of living in a city, with older inhabitants being among those who are more satisfied with their city of residence (Parkes, Kearns, & Atkinson, 2002). This result is found even in deprived areas, which is explained by citizens’ habituation to degradation and their adaption to it (Andersen, 2002). The number of years residing in a city is related to a greater attachment to the place, with women showing higher levels of attachment compared with men (Perez, Fernandez-Mayoralas, Rivera, & Abuin, 2001). Older residents (Abbott & Sapsford, 2005) and women more often report feeling insecure (Smith, Torstensson, & Johansson, 2001), and therefore value policies that aim to reduce crime (Kamalipour, Yeganeh, & Alalhesabi, 2012). Inhabitants with higher incomes and levels of education tend to be more positive about policies on sustainability issues, such as urban rehabilitation/revitalization (Vigdor, 2010).

The case study cities

Portugal has 158 cities: 54 cities in the northern part of the mainland, 43 in the central part and 49 in the southern part, with 12 cities being located on the Portuguese islands of Madeira and the Azores. In 2011, 44% of the resident population lived in cities (census data obtained from INE – National Statistics Institute). It should be noted that in Portugal some towns do not have the status of cities despite the higher number of inhabitants compared with some cities. This is because a town can be upgraded to city status only when the municipality council applies to the central government, and such status may or may not be granted. With city boundaries kept constant, 31 cities showed population loss during the period 1991–2011 (Guimarães, Barreira, & Panagopoulos, 2014). On the mainland, 26 cities showed shrinkage, with six of them losing more than 10% of their inhabitants (Figure 1).

In contrast to the situation in other countries, where a city council manages a city, in Portugal this occurs only where the municipal boundaries are coincident with the city, such as in Lisbon or Oporto. In those cases, the mayor, by deciding what is best for the municipality, also makes decisions at the urban level. However, this is not the case for the majority of municipalities, which incorporate both urban and rural areas, or several cities, or even no cities.

Several causes have contributed to the reduction in the number of urban inhabitants, although the underlying reasons differ from city to city. Along with the ageing of the population and the natural evolution of birth rates, the phenomena of suburbanization, economic transformation, climate change and the satellite effect can explain urban decline in Portugal, with several overlapping causes being observed in some cities (for details, see Guimarães et al., 2014). On the basis of the typology of shrinkage proposed in Guimarães et al. (2014), four case study cities were selected in the present study: Oporto, Barreiro, Moura and Peso da Régua, as cases of shrinkage caused by
suburbanization, deindustrialization, climatic effects and satellite effects, respectively. Because the historical past of these cities influences both their current condition and their future prospects, the cities are briefly described below, together with details about the cause of shrinkage in each case.

Oporto, the second most populous city in the country, shows the highest relative population decline of the four cities for the period 1991–2011 of 21.5% (from 302 500 to 237 600 inhabitants; based on census data). This sharp decline might help explain the crime rate of 69.3 per 1000 inhabitants in 2012 (INE data), compared with the national average of 38.5. Meanwhile, 15 of the 16 surrounding cities that together compose the Metropolitan Area of Oporto increased by a total of 106 000 inhabitants (Figure 2). In 1991, 38.4% of the inhabitants of Oporto lived within the metropolitan area of the city, decreasing to 28.4% in 2011 (census data). Oporto is known worldwide for its wine and as a historical centre classified as a World Heritage Site by the United Nations Educational, Scientific and Cultural Organization (UNESCO). Despite a rapid ageing of its

Figure 1. Shrinking cities in Portugal between 1991 and 2011, as calculated based on census data.
population from 71 to 103 seniors\(^1\) for every 100 children\(^2\) and a natural balance (the difference between births and deaths) of \(-9500\) inhabitants from 2001 to 2011 (census data), the main cause of population decline was suburbanization (Guimarães et al., 2014; Sousa, 2010).

Barreiro, located on the southern margin of the Tejo River opposite Lisbon (the capital city) on the north bank, shows the second largest population loss of the four cities in relative terms for the period 1991–2011 of 21.2\% (from 47 900 to 37 700 inhabitants; census data). Up until 1950, the city’s industry was outstanding, with the operation of railroads and the production of the chemical industry. Today, only vestiges of this past are still visible, through the railway facilities, the workers’ neighbourhood and one

---

\(^1\) For every 100 children.
\(^2\) Population from 71 to 103 seniors.
remaining active chemical factory. The development of the city is related to the proximity of Lisbon, which is accessible either by water or by land (Figure 3). The city also shows a rapidly ageing population, increasing from 72 to 115 elderly for every 100 children from 2001 to 2011 (census data); however, the population loss exceeds the negative natural balance, and the main cause of population displacement was the abrupt closure of industrial facilities (Guimarães et al., 2014; Sousa, 2010). Barreiro shows also some signs of social deprivation as revealed by the crime rate of 40.6 per 1000 inhabitants in 2012 and the unemployment rate of 15.4% in 2011 (INE and census data), with both values lying above the respective national averages.

Moura is located in the interior of the country in the Alentejo region, which is heavily affected by desertification, heatwaves and extensive periods of drought. Figure 4 shows that it is located in the area of harshest climate, which may become aggravated as a result of anticipated climate change. Moura shows recent shrinkage, with a decrease of 9% in the number of inhabitants (from 9200 to 8400) between 2001 and 2011.
Figure 4. Geographic distribution of insolation in Portugal with respect to the locations of various inland and coastal cities.
Source: Environment Atlas (http://sniamb.apambiente.pt/webatlas/).
Between 1991 and 2001, the population increased, probably because of the construction of the Alqueva dam, which temporarily generated high employment demand in the construction sector in the area (Guimarães et al., 2014). Analysis of the population decline by age group shows that 14% of young people (< 24 years old) and 10% of the non-elderly adults (24–64 years old) left Moura between 2001 and 2011 (census data). Consequently, in the same period, the ageing population increased from 60 to 72 seniors for every 100 children (census data). The main economic activities in Moura are handcrafts, the agro-food industry, agriculture and livestock production. The city has an unemployment rate that is above the national average (17% versus 10.4% in 2011; census data), reflecting the fact that most of the employment opportunities and well-paid jobs are to be found in the coastal cities of Portugal rather than in the interior regions. Moreover, the difficult climatic conditions, together with the lack of supportive public services and amenities that might sustain population, suggest that shrinkage will continue.

Peso da Régua, located in the north of the country, shows a persistent, although slight, decline in its population, having lost 3% of its inhabitants between 1991 and 2011 (from 10 300 to 10 000; census data). The city increased its population proportion in the municipality from 48% to 58% of the inhabitants between 1991 and 2011 because the municipality was also shrinking, losing 21% of its population (Figure 5) (census data). The neighbouring municipalities of Peso da Régua (with the exception of Vila Real) also experienced this trend, with the resident population declining by 14.8% between 1991 and 2011 (census data).

Peso da Régua is known as an international capital of wine, with agriculture and tourism being the main economic activities. The city is located at an altitude of 125 m above mean sea level, and the terrain of the municipality is very rugged. The nearest city is Vila Real (25 km away), which increased in population by 33% between 1991 and 2011 (census data). In 2011, the purchasing power\(^3\) in Peso da Régua was 79.2 (below the national average of 100), whereas in Vila Real the value was 101.5 (INE data), which shows that the average quality of life was lower in Peso da Régua, mainly because the principal economic activity is in the primary sector, which is characterized by below-average wages. In 2011, 7.6% of residents in Peso da Régua depended on minimum income/social inclusion grants, whereas in Vila Real the corresponding value was 4.3% and the national average was 5% (INE data). Furthermore, higher-education opportunities in Vila Real have been attracting younger people to live and settle there. Notably, young people (< 24 years old) were the only age group that declined in population in Peso da Régua between 2001 and 2011 (census data). All these reasons together suggest that Peso da Régua has been declining because it is a satellite of Vila Real (Guimarães et al., 2014).

Methods

Given that active public participation in Portugal is still at an early stage and that city shrinkage is not a topic on the political agenda, citizens might not be fully aware of this issue; therefore, in order to boost citizens’ involvement in decision-making regarding shrinkage, the methodology used for the study was a consultation procedure through a survey. The survey was entitled ‘How to Deal with Population Loss in your City’ and was conducted by interviewing 701 inhabitants between 7 and 23 July 2014. The survey took place in the four case study cities: Oporto (180 respondents), Barreiro (179), Moura (171) and Peso da Régua (171). The sample was defined using random stratified
sampling, and the stratification variable was the number of inhabitants in each city, according to national statistics data from the 2011 Census. The sample size of 701 respondents ensures a maximum margin of error of 7.45% for a 95% confidence interval on the population proportion of the four cities. All parishes that compose the cities were sampled according to their weighting in the city’s population: Oporto (15 parishes), Barreiro (3), Moura (3) and Peso da Régua (2) (Table 1). Respondents were selected according to a systematic method to ensure a random sample, stratified according to the typology of households characterizing each city and using 2011 Census data (Table 2).

The questionnaire survey was conducted face to face and was tested beforehand using a pilot survey (n = 10), as a result of which minor changes were made to improve the clarity and wording of some questions.

Various studies have used questionnaires to address issues regarding residential satisfaction (Bonaiuto, Fornara, & Bonnes 2006; Mellander, Florida, & Stolarick, 2011),

Figure 5. Rates of population change between 1991 and 2001 in Peso da Régua and neighbouring municipalities, as calculated based on census data.
Table 1. Sample distribution by city and parish.

| Cities and parishes | Sample | %  |
|---------------------|--------|----|
| Barreiro            | 179    | 26 |
| Barreiro            | 36     |    |
| Verderena           | 50     |    |
| Alto do Seixalinho  | 93     |    |
| Moura               | 171    | 24 |
| Moura (Santo Agostinho) | 87    |    |
| Moura (São João Baptista) | 84 |    |
| Peso da Régua       | 171    | 24 |
| Peso da Régua       | 90     |    |
| Godim               | 81     |    |
| Oporto              | 180    | 26 |
| Aldoar              | 9      |    |
| Bonfim              | 20     |    |
| Campanhã            | 23     |    |
| Cedofeita           | 19     |    |
| Foz do Douro        | 8      |    |
| Lordelo do Ouro     | 15     |    |
| Massarelos          | 5      |    |
| Miragaia            | 2      |    |
| Nevogilde           | 4      |    |
| Paranhos            | 34     |    |
| Ramalde             | 27     |    |
| Santo Ildefonso     | 8      |    |
| São Nicolau         | 1      |    |
| Sé                  | 3      |    |
| Vitória             | 2      |    |
| Total               | 701    | 100|

Table 2. Sample distribution by household typology.

| Household typology | Sample |
|--------------------|--------|
|                    | Barreiro | Moura | Peso da Régua | Oporto |
| One person (15–64 years old) with or without other(s) (< 15 years old) | 30 | 21 | 18 | 35 |
| One person (> 64 years old) | 25 | 22 | 16 | 24 |
| Two persons (both 15–64 years old) with or without other(s) (< 15 years old) | 51 | 56 | 53 | 46 |
| Two persons in which at least one is > 64 years old | 35 | 26 | 23 | 29 |
| Three persons (> 15 years old) with or without other(s) (< 15 years old) | 38 | 46 | 61 | 46 |
| Total              | 179     | 171   | 171           | 180   |

residential perception (Blasius & Friedrichs, 2007; Friedrichs & Blasius, 2009), residential attachment (Comstock et al., 2010; Woldoff, 2002), and residential pull/push factors (Couch & Karecha, 2006; Reckien & Martinez-Fernandez, 2011). However, to
our knowledge, no previous study has used an instrument specifically constructed to ask residents about policies with respect to shrinking cities. The most similar approaches have been those proposed by Abbott and Sapsford (2005), who surveyed older people living in a deprived neighbourhood in England and ranked their preferred policies; and Chaland and Magzul (2008), who referred to Downs (1981) and listed the best practices in terms of policies and programmes. Therefore, although we used all these previous studies for guidance, we developed a questionnaire that was specific to answering the following research questions: (1) Do citizens prefer different policies for tackling shrinkage when the causes of the shrinkage are different? (2) Are citizens’ preferences for policies affected by their demographic and socio-economic profiles?

The questionnaire consisted of three parts. The first identified the demographic profile of the respondent, evaluated the perception of the respondent regarding the evolution of the population of the city, enquired about the most suitable entity for implementing policies to deal with shrinkage, questioned the respondent’s willingness to participate in the implementation of policies, and assessed whether the respondent intended to leave the city within one year.

The second part of the questionnaire concerned the policy options able to be chosen by the respondent. The included policies were those suggested by the theoretical framework and by the specific causes driving shrinkage in the case study cities. Respondents were asked to rank by preference the following five feasible policies from 5 (most important) to 1 (least important): economic revival, safety and accessibility, public services, building interventions, and environmental actions. ‘Economic revival’ was defined as a set of policy options that would promote economic activity in the secondary and tertiary sectors, as well as support the settlement of young people, families, and/or foreigners. ‘Safety and accessibility’ was explained as a set of policies that would improve access to other urban areas, including an increase in the provision of public transport, which would influence the sense of safety of residents that in turn would be augmented by extra law enforcement and street lighting. ‘Public service’ policies included the improvement of healthcare and an increase in the number of kindergartens, schools, universities, elderly centres and administrative services. ‘Building interventions’ comprised policies for the rehabilitation or demolition of derelict buildings, a decrease in the cost of urban rehabilitation, the promotion of residential settlement in the city centre and the conservation of places with high heritage value. Finally, ‘environmental actions’ embrace the creation of urban gardens and parks, an increase in environmental quality, the recovery of degraded areas, and the promotion of renewable energies.

The third part of the questionnaire sought to characterize the socio-economic attributes of each respondent, and included questions regarding housing characteristics such as ownership, type of house and era of building construction, as well as the number of years of residence in the city, household income and number of employed in the household.

Table 3 summarizes the demographic and socioeconomic profiles of the respondents as well as their assessment of the city in which they live. The last column reports average national data for comparative purposes.

Taking into account the type of variables (Table 3) and the non-normality of the data, bivariate analyses were made using Spearman’s rank correlation and non-parametric procedures (Mann–Whitney and Kruskal–Wallis tests). All variables were cross-tabulated with the five policies.
Table 3. Survey statistics with respect to the demographic and socioeconomic characteristics of respondents and their assessment/perception of their cities of residence, as well as Portugal national average values for demographic and socio-economic data.

| Statistics                                      | Overall | Oporto | Barreiro | Peso da Régua | Moura | Portugal (INE 2013) |
|------------------------------------------------|---------|--------|----------|---------------|-------|---------------------|
| Sample (N)                                     | 701     | 180    | 179      | 171           | 171   | 171                 |
| Age (continuous variable)                      |         |        |          |               |       |                     |
| Mean                                           | 54      | 57     | 54       | 53            | 52    | 43                  |
| Maximum                                        | 96      |        |          | 87            |       |                     |
| Minimum                                        |         |        |          | 18            |       |                     |
| Gender (nominal variable: 1 – feminine, 0 – masculine) |         |        |          |               |       |                     |
| Frequency of women (%)                         | 61.2    | 70.6   | 51.4     | 62.6          | 60.2  | 52                  |
| Frequency of men (%)                           | 38.8    | 29.4   | 48.6     | 37.4          | 39.8  | 48                  |
| Education Level (ordinal variable) (1 – illiterate, 2 – primary school (incomplete or complete), 3 – secondary school (2 years), 4 – secondary school (5 years), 5 – secondary school (8 years), 6 – higher education) |         |        |          |               |       |                     |
| Mean                                           | 3.34    | 3.37   | 3.55     | 3.37          | 3.07  | 3.5                 |
| Maximum                                        |         | 6      |          |               |       |                     |
| Minimum                                        |         |        |          | 1             |       |                     |
| Monthly Household Income (ordinal variable: 1 – < 500, 2 – 500–1000, 3 – 1000–1500, 4 – 1500–2000, 5 – > 2000) |         |        |          |               |       |                     |
| Mean                                           | 1.93    | 1.78   | 2.25     | 1.80          | 4 (2009) |                     |
| Maximum                                        |         | 5      |          |               |       |                     |
| Minimum                                        |         |        |          | 1             |       |                     |
| Household (ordinal variable: 1 – one person to 5 – more than four persons) |         |        |          |               |       |                     |
| Mean                                           | 2.26    | 2.13   | 2.08     | 2.49          | 2.33  | 2.6                 |
| Maximum                                        |         | 5      |          |               |       |                     |
| Minimum                                        |         |        |          | 1             |       |                     |
| Era of Construction (ordinal variable: 1 – after the 1970s, 2 – before the 1970s) |         |        |          |               |       |                     |
| Frequency of houses after the 1970s (%)         | 52.4    | 57.8   | 45.8     | 63.7          | 58.5  | 63% (2011)          |
| Frequency of houses before the 1970s (%)        | 47.6    | 42.2   | 54.2     | 36.3          | 41.5  | 37% (2011)          |
| Ownership (nominal variable: 0 – owner, 1 – renting) |         |        |          |               |       |                     |
| Frequency of owners (%)                        | 59.1    | 29.4   | 69.8     | 60.8          | 77.2  | 73.2 (2011)         |
| Frequency of tenants (%)                       | 40.9    | 70.6   | 30.2     | 39.2          | 22.8  | 26.8 (2011)         |
| Years of Residence (ordinal variable: 1 – < 10 years, 2 – 10–20 years, 3 – > 20 years) |         |        |          |               |       |                     |
| Mean                                           | 2.44    | 2.42   | 2.61     | 2.28          | 2.43  |                     |
| Maximum                                        |         | 3      |          |               |       |                     |
| Minimum                                        |         |        |          | 1             |       |                     |
| Perception Regarding Population Evolution (ordinal variable: 1 – diminishing, 2 – stable, 3 – growing) |         |        |          |               |       |                     |
| Mean                                           | 1.41    | 1.38   | 1.58     | 1.44          | 1.22  |                     |
| Maximum                                        |         | 3      |          |               |       |                     |
| Minimum                                        |         |        |          | 1             |       |                     |
| Satisfaction about the City (ordinal variable: 1 – unsatisfied to 5 – very satisfied) |         |        |          |               |       |                     |
| Mean                                           | 4.05    | 4.34   | 3.54     | 4.24          | 4.10  |                     |
| Maximum                                        |         | 5      |          |               |       |                     |
| Minimum                                        | 1       | 2      | 1        | 3             | 1     |                     |

(Continued)
Results and discussion

Economic revival policies

Economic revival was the policy theme ranked as the most important (Table 4) for the full sample as well as for the four city samples. Such a level of importance might be related to the economic conditions of the overall country, in which the unemployment rate has been increasing year by year, reaching 16.2% in 2013 (INE data), which is significantly above the European average for that year (10.6% for the 28 member states; Eurostat data).

The younger the respondent, the more important the economic revival policy was rated (Table 5). This policy has greater importance to those with higher levels of education and income. Also, the younger the respondent, the higher was the education level (rho = −0.582, p < 0.01). Hence, we can conclude that younger and more educated respondents tend to consider economic revival as more important. As income and education level were also correlated (rho = 0.448, p < 0.01), we suggest that the highest ranking given to this policy by the younger residents was also related to the higher awareness of the fact that jobs will attract residents to cities. Younger residents value access to jobs (Montén & Thum, 2010). In Portugal, the unemployment is affecting the younger sector of the population more severely compared with older adults. In 2013, 38.1% of the active population < 25 years old was unemployed whereas for the remaining age groups the values were less than half that figure (INE data). Both genders consider economic revival as important; however, men tend to rank it as most important (rank 5) and women rank it as important (rank 4). This difference may be a function of the fact that in Portugal, 51% of the unemployed population are men (INE data for 2013).

In regard to home ownership, although both tenants and owners value this policy issue, those that own their own house consider economic revival one level higher on the ranking scale than do tenants (most important versus important – ranks 5 versus 4). This is consistent with the observation that homeowners tend to be more aware of their city’s problems because they tend to live there for longer periods compared with tenants (Kamalipour et al., 2012). Satisfaction with the city in which the respondent is living

Table 3. (Continued).

| Statistics                        | Overall Oporto | Barreiro | Peso da Régua | Moura | Portugal (INE 2013) |
|-----------------------------------|----------------|----------|---------------|-------|---------------------|
| **Desires for Population Trend**  |                |          |               |       |                     |
| Mean                              | 2.77           | 2.71     | 2.86          | 2.83  |                     |
| Maximum                           |                |          |               |       |                     |
| Minimum                           |                |          |               |       |                     |
| **Responsibility of Action**      |                |          |               |       |                     |
| Frequency of Government (%)       | 36.5           | 30.0     | 35.8          | 38.6  | 42.1                |
| Frequency of Municipality (%)     | 51.1           | 58.9     | 50.8          | 54.4  | 39.8                |
| Frequency of other (%)            | 12.4           | 11.1     | 13.4          | 7.0   | 18.1                |
| **Willingness to Participate (WTP)** |              |          |               |       |                     |
| Frequency of WTP (%)              | 43.2           | 47.2     | 53.1          | 46.2  | 25.7                |
| Frequency of not WTP (%)          | 56.8           | 52.8     | 46.9          | 53.2  | 74.3                |
tends to be lower for those that rank this policy theme as high. Older people have been previously found to have higher satisfaction levels with their city (Parkes et al., 2002), which was also observed in our results. Furthermore, older residents have fewer or no worries regarding job opportunities. The central government was considered by respondents to be the main institution responsible for the implementation of this policy.

Considering each city, in both Oporto and Peso da Régua the significant variables show the same trend as described for the full sample (Table 5). For Moura, the results show that the bigger the household, the higher the importance placed on economic revival policies. As in the other three cities, income and household size in Moura were positively correlated ($\rho = 0.374$, $p < 0.01$), and therefore this result might be more related to the fact that bigger households tend to have children or unemployed members within them (68% of the households with three members include at least one member unemployed). Furthermore, if some members of a large household (three or more members) cannot find a job in Moura, then the large distance (a minimum of 60 km) to other urban areas where employment opportunities might exist can have important consequences for the family. This is not the case in the other three studied cities, because the distance to other urban areas is smaller; hence, residents can work in these other urban

| Policy options                      | Overall | Oporto | Barreiro | Peso da Régua | Moura |
|------------------------------------|---------|--------|----------|---------------|-------|
| **Economic Revival** (ordinal variable: 1 – least important to 5 – most important) | Mean    | 4.31   | 3.95     | 4.47          | 4.32  |
| Mode                               |         | 5      |          |               | 5     |
| Maximum                            |         |        |          |               | 1     |
| Minimum                            |         |        |          |               |       |
| **Safety and Accessibility** (ordinal variable: 1 – least important to 5 – most important) | Mean    | 3.21   | 3.28     | 3.41          | 3.07  |
| Mode                               |         | 4      |          |               | 3     |
| Maximum                            |         |        |          |               | 1     |
| Minimum                            |         |        |          |               |       |
| **Building Interventions** (ordinal variable: 1 – least important to 5 – most important) | Mean    | 2.66   | 2.54     | 2.40          | 2.54  |
| Mode                               |         | 2      |          |               | 3     |
| Maximum                            |         |        |          |               | 1     |
| Minimum                            |         |        |          |               |       |
| **Public Services** (ordinal variable: 1 – least important to 5 – most important) | Mean    | 2.82   | 2.15     | 2.74          | 2.86  |
| Mode                               |         | 4      |          |               | 2     |
| Maximum                            |         |        |          |               | 5     |
| Minimum                            |         |        |          |               | 1     |
| **Environmental Actions** (ordinal variable: 1 – least important to 5 – most important) | Mean    | 2.02   | 1.11     | 1.09          | 2.21  |
| Mode                               |         | 1      |          |               | 2     |
| Maximum                            |         |        |          |               | 5     |
| Minimum                            |         |        |          |               | 1     |
Table 5. Bivariate correlations and non-parametric tests regarding the policy theme of economic revival for the full sample and each city subsample.

| Economic Revival versus … | Overall | Oporto | Barreiro | Peso da Régua | Moura | Test used |
|---------------------------|---------|--------|----------|---------------|-------|-----------|
| Age                       | Rho = −0.92** | n.s.   |          |               |       | Spearman's rho |
|                           | p = 0.015     |        |          |               |       |            |
|                           | N = 701       |        |          |               |       |            |
| Education Level           | Rho = 0.086*  | n.s.   |          |               |       |           |
|                           | p = 0.024     |        |          |               |       |            |
|                           | N = 699       |        |          |               |       |            |
| Satisfactions             | Rho = −0.110**| n.s.   |          |               |       |           |
|                           | p = 0.003     |        |          |               |       |            |
|                           | N = 701       |        |          |               |       |            |
| Income                    | Rho = 0.199** | n.s.   |          | Rho = 0.337**| n.s.  |           |
|                           | p = 0.00       |        |          | p = 0.001     |       |            |
|                           | N = 478       |        |          | N = 92        |       |            |
| Household                 | n.s.          |        |          | Rho = 0.170** |      |           |
|                           | p = 0.027     |        |          |               |       |            |
|                           | N = 171       |        |          |               |       |            |
| Era of Construction       | n.s.          |        |          |               |       |           |
| Years of Residence        | n.s.          |        |          |               |       |           |
| Population Trend Perception| n.s.         |        |          |               |       |           |
| Desires                   | n.s.          |        |          |               |       |           |
| Gender                    | Average (F) = 4.19** | Average (F) = 3.82* | n.s. |             | Mann–Whitney test |
|                           | p = 0.000     |        |          |               |       |            |
| Ownership                 | Average (M) = 4.50** | Average (M) = 4.25* | n.s. |             |            |
|                           | p = 0.013     |        |          |               |       |            |
|                           |              |        |          |               |       |            |
| Ownership                 |              |        |          |               |       |            |
| WTP                       | n.s.          |        |          |               |       | WTP**     |
|                           | p = 0.000     |        |          |               |       |            |
|                           | N = 171       |        |          |               |       |            |
| Responsibility            | Government* | n.s.   |          | Government**  |       | Kruskal–Wallis test |
|                           | p = 0.009     |        |          | p = 0.000     |       |            |
|                           | N = 701       |        |          | N = 171       |       |            |
areas. In Barreiro, the respondents also ranked economic revival as the most important policy, but this choice was not related to any specific characteristic of the respondents.

Safety and accessibility policies

The second most important policy theme for the full sample was safety and accessibility (Table 4), as well as for respondents in Oporto, Barreiro and Peso da Régua. The older the respondents, the higher the importance was placed on this policy (Table 6). Older citizens have higher requirements for mobility (i.e., public transport, good pedestrian access) and place higher value on a sense of safety (Abbott & Sapsford, 2005). Taking into account the full sample, women tend to rank this policy slightly higher than do men, probably because of a higher sense of vulnerability (Smith et al., 2001). For the cities, this gender difference was detected only in Barreiro, which implies a greater sense of insecurity in this city, perhaps as a result of the perception of social deprivation. Furthermore, those respondents who perceive the decrease in population rank this policy higher, which is consistent with the above interpretation; a lower number of residents causes a feeling of abandonment and can contribute to a perception of insecurity and isolation. Insecurity and social deprivation have previously been considered to be consequences of urban shrinkage (Hollander & Németh, 2011). When features of a city become less attractive, those residents who have the capacity to leave do so, and those who stay are commonly the more disadvantaged population groups, such as the poor, the old and foreigners, which may bring about social problems in these areas (Strohmeier & Bader, 2004).

In the case of Moura, since this is a small inland city, the need for public services exceeds the importance of safety and accessibility. However, comparing the crime rates between the regions in which the case study cities are located, it is observed that Moura is located in the region with the lowest value, at 25 per 1000 inhabitants in 2012 (INE data). Nevertheless, safety and accessibility is the third most important policy in Moura. The geographic location of the city and the low crime rates lead to the conclusion that this level of importance is linked mainly to the long distance from healthcare services. The closest hospital to Moura is located in Beja, 60 km away, which implies a journey by car on secondary roads that can take around 1 hour. Also in Moura, household income and respondents’ desires regarding population change were related to the ranking of safety and accessibility policies, whereby lower-income residents rank their importance higher. Those who desire an increase in population also rank this policy higher, which might be related to their wish to improve the living conditions of both current and new residents.

The fact that those living in Barreiro consider safety and accessibility as the second most important policy theme is very relevant, because the central government intends building a bridge from Barreiro over the Tejo River to Lisbon (the third connection between the northern and southern margins of the river; Figure 3). Although this policy is not unanimously supported at national level, the results indicate that the residents of Barreiro favour it.

In Peso da Régua, residents living in houses built after the 1970s tend to rank safety and accessibility higher than do residents living in older houses. This might be related to the fact that in Peso Régua, 64% of the houses were built after the 1970s and among the respondents to the questionnaire, 64% of the occupants of these newer houses were homeowners; hence, the higher the safety and accessibility of the city, the higher the value of their investment. In Oporto, because of the proportion of elderly people living
| Safety and Accessibility versus … | Overall | Oporto | Barreiro | Peso da Régua | Moura | Test used |
|----------------------------------|---------|--------|----------|---------------|-------|-----------|
| Age                              | Rho = 0.102* | n.s.   |          |               |       | Spearman’s rho |
|                                  | p = 0.007 |        |          |               |       |            |
|                                  | N = 701   |        |          |               |       |            |
| Population Trend Perception      | Rho = −0.087* | n.s.   |          |               |       |            |
|                                  | p = 0.025 |        |          |               |       |            |
|                                  | N = 660   |        |          |               |       |            |
| Education Level                  | n.s.     | n.s.   |          |               |       |            |
| Household                        |          | n.s.   |          |               |       |            |
| Income                           | n.s.     | n.s.   |          |               |       |            |
|                                  |          | n.s.   |          | Rho = −0.172* |       |            |
|                                  |          |        |          | p = 0.048     |       |            |
|                                  |          |        |          | N = 133       |       |            |
| Desires                          | n.s.     | n.s.   |          |               |       |            |
|                                  |          | n.s.   |          | Rho = 0.209** |       |            |
|                                  |          |        |          | p = 0.006     |       |            |
|                                  |          |        |          | N = 168       |       |            |
| Era of Construction              | n.s.     | n.s.   |          |               |       |            |
|                                  |          | n.s.   |          | Rho = −0.228**|       |            |
|                                  |          |        |          | p = 0.003     |       |            |
|                                  |          |        |          | N = 171       |       |            |
| Years of Residence Satisfaction  | n.s.     | n.s.   |          |               |       | Mann–Whitney test |
| Gender                           | Average (F) = 3.29* | Not significant |          | Average (F) = 3.67** | n.s. |            |
|                                  | Average (M) = 3.07* |          |          | Average (M) = 3.13** |       |            |
|                                  | p = 0.028 |          |          | p = 0.006     |       |            |
| Ownership                        | n.s.     | n.s.   |          |               |       |            |
| WTP                              |          | n.s.   |          |               |       |            |
| Responsibility                   | n.s.     | Government* |          |               | Municipality** | Kruskal–Wallis test |
|                                  |          | p = 0.014 |          |               | p = 0.009 |            |
|                                  |          | N = 180   |          |               | N = 171   |            |
in the city centre, safety issues assume special relevance because of the higher vulnerability of this age group (Abbott & Sapsford, 2005).

Public services policies
Public services policies were the third most important of the five policy themes for the full sample (Table 4). In this case, home ownership and citizens’ choice regarding the most suitable entity to implement chosen policies were related to the rank of this policy (Table 7). Public services was the second most important policy for respondents in Moura and the third most important for those in Barreiro and Peso da Régua (Table 4). In Oporto, the average ranking level implies that this was the fourth most important policy, which is in accordance with the characteristics of the city, being the second biggest in Portugal, and as such the levels of provision of public services are high.

In both Oporto and Barreiro, homeowners rank this policy theme slightly higher than do tenants, which might be related to the higher value that homeowners place on their property compared with tenants. In Barreiro, the older the respondent, the higher the importance was placed on this policy. Barreiro benefits from its proximity to Lisbon, which younger Barreiro residents can easily reach; however, for older residents, the existence of nearby public services and facilities could improve their quality of life. In Peso da Régua, citizens feel the lack of some public services because Vila Real is the capital of the district (a territorial unit joining several municipalities), and these citizens need to make short-term trips to the capital to solve various types of issues and problems. The satellite effect was well captured by this response.

In Moura, the older the house, the greater the importance that was placed on public services by its occupants. This is a result that is specific to Moura, as it is the city with less well developed public services and it is further from larger urban areas that could offer the missing services. Moreover, we also observed that the older the house, the older are its residents (rho = 0.262; p < 0.01): houses built before the 1970s were occupied by residents with an average age of 58, whereas houses built after the 1970s were occupied by residents with a mean age of 48. Nevertheless, age in itself was not a significant variable in the case of Moura; hence, the relevance of this policy applied to all age groups.

Building intervention policies
Building interventions was the fourth most important policy theme for the full sample (Table 4). For this policy theme, income, household size, era of house construction, satisfaction level with the city, and home ownership were significantly related to the ranking obtained (Table 8). The older the house, the greater was the importance given by respondents to building intervention policies. Furthermore, those with lower incomes tend to live in older houses, for which interventions might be necessary (income versus house age; rho = −0.95, p < 0.05). Smaller households also include older residents (rho = −0.430, p < 0.01), and the older the house, the greater the age of its residents (rho = 0.203, p < 0.01). Hence, these results are as might be expected: residents who live in older houses consider building interventions to be more relevant. Tenants rank building interventions higher than do homeowners, as 55% of tenants live in houses built before the 1970s whereas 57% of house owners live in newer houses. Finally, the higher the satisfaction level with the city, the higher the rating attributed by respondents to this policy, which might demonstrate the degree of concern that residents have for the appearance of their city.
Table 7. Bivariate correlations and non-parametric tests regarding the policy theme of public services for the full sample and each city subsample.

| Correlation and non-parametric tests                                                                 |
|-----------------------------------------------------------------------------------------------------|
| **Public Services versus ...                      | Overall | Oporto | Barreiro | Peso da Régua | Moura | Test used                          |
| Age                                                 | n.s.     |        | Rho = 0.153* | n.s.         |        | Spearman’s rho                      |
|                                                     | p = 0.040 |        |           |               |       |                                         |
|                                                     | N = 179  |        |           |               |       |                                         |
| Era of Construction                                 | n.s.     |        | Rho = −0.160* | n.s.         |        | Rho = 0.179*                         |
|                                                     | p = 0.032 |        |           |               |        | p = 0.019                           |
|                                                     | N = 179  |        |           |               |       | N = 171                             |
| Years of Residence                                  | n.s.     |        |           | Rho = −0.202** |        | Rho = 0.254**                       |
|                                                     | p = 0.008 |        |           |               |        | p = 0.001                           |
|                                                     | N = 170  |        |           |               |       | N = 169                             |
| Education Level                                     | n.s.     |        |           |               |        | n.s.                                |
| Household                                           | n.s.     |        |           |               |        | n.s.                                |
| Income                                              | n.s.     |        |           |               |        | n.s.                                |
| Population Trend                                    | n.s.     |        |           |               |        | n.s.                                |
| Perception                                          | n.s.     |        |           |               |        | n.s.                                |
| Satisfaction                                        | n.s.     |        |           |               |        | n.s.                                |
| Desires                                             | n.s.     |        |           |               |        | n.s.                                |
| Ownership                                           | n.s.     |        |           |               |        | Mann–Whitney test                   |
| Average (Owner) = 3.00**                            | Average (Owner) = 2.45* | Average (Owner) = 2.86* | Average (Owner) = 2.71* | n.s.  |                                         |
| Average (tenant) = 2.54**                           | Average (tenant) = 2.02* | Average (tenant) = 2.46* | Average (tenant) = 3.10* |       |                                         |
| p = 0.000                                           | p = 0.029 | p = 0.028 | p = 0.05   |       |                                         |
| Gender                                               | n.s.     | Average (F) = 3.02* | Average (M) = 2.59* | p = 0.020 | n.s.                                |
| WTP                                                  | Other institutions** | Other institutions** | Other institutions* | n.s.  | Kruskal–Wallis test                   |
| Responsibility                                       | p = 0.001 | p = 0.002 | p = 0.013  |       |                                         |
|                                                     | N = 701  |        | N = 179   |       |                                         |
Analysing by city, in Oporto this was the third most important policy (Table 4), whereas for all other cities it was the fourth most important. This result follows expectations, because the degradation of city buildings in Oporto is quite visible, as most such buildings are concentrated in the historical core of the city. Residents with lower education levels and lower income rank this policy higher than do other residents. This contradicts initial predictions (Vigdor, 2010), mainly because those residents with lower economic capacity live in areas of older and abandoned buildings, whereas those with higher incomes, who are also those with higher education levels (rho = 0.557, p < 0.01), can afford to live in residential areas where the surroundings are more pleasant. Accordingly, in Oporto, tenants rank this measure higher than do homeowners, which is related to the reasons described above: 63% of the tenants live in houses built before the 1970s whereas only 45% of home owners live in houses built before the 1970s. This explains why policies that encourage home ownership are typically promoted in areas occupied mainly by tenants so as to avoid the persistence of property degradation in cities (Friedrichs & Blasius, 2009).

In Barreiro, household income, household size, era of house construction, and home ownership were related to the ranking obtained for this policy, and the same reasons as described for the full sample apply (Table 8). However, in the case of Barreiro, those residents who have been living for a shorter time in the city rank this policy higher than do other residents. This might be related to the fact that inhabitants of deprived areas are known to accept disorder and ugliness more readily (Andersen, 2002), such as it is expected in old industrial sites.

In Peso da Régua, education level, household size, era of house construction, years of residence, gender, and home ownership were related to the ranking of building intervention policies. Those residents who have lived longer in Peso da Régua tend to rank this policy higher, because they live in older houses; hence, the need for building interventions in such households was probably higher (rho = 0.416, p < 0.01).

In Moura, as in Barreiro, those residents who have lived in the city for a shorter time rank this policy higher compared with other residents. As in Barreiro, younger residents live in newer houses (rho = 0.460, p = 0.000), and therefore the concern was not with housing but more with the city in general.

Environmental policies

Environmental issues and sustainability was the policy theme that was ranked lowest for the full sample as well for each of the studied cities (Table 4). In this case, and considering the full sample, the variables that were related to this ranking were: age, education level, era of house construction, perception about population trend, desires for population change, and responsibility for policy implementation (Table 9). As expected, environmental issues were ranked higher by residents with higher levels of education, who were also the younger residents and those living in newer houses (rho = 0.338, p < 0.000). In Moura, the expectations were to find citizens ranking the environmental policies higher, given that the city is subject to severe climatic conditions (see the third section) and benefits heavily from agro-environmental subsidies. The establishment of new, tougher environmental legislation associated with increasing public pressure for protecting the environment has drastically altered the lives of many Portuguese who worked in the mining, industrial, and agricultural sectors. The ranking of this policy by the inhabitants of Moura might be related to environmental regulations forcing the closure of many industries and the abandonment of marginal land for agriculture, as well
Table 8. Bivariate correlations and non-parametric tests regarding the policy theme of building interventions for the full sample and each city subsample.

| Building Interventions versus … | Overall | Oporto | Barreiro | Peso da Régua | Moura | Test used |
|---------------------------------|---------|--------|----------|---------------|-------|-----------|
| Income                          | Rho = −0.183** | Rho = −0.293** | Rho = −0.195 | n.s.          |       | Spearman’s rho |
|                                 | p = 0.000  | p = 0.002 | p = 0.22  | n.s.          |       |             |
|                                 | N = 478    | N = 115  | N = 138   | n.s.          |       |             |
| Household                       | Rho = −0.098** | n.s.    | Rho = −0.194** | Rho = −0.184* | n.s.  |             |
|                                 | p = 0.009  | p = 0.009 | p = 0.016  | n.s.          |       |             |
|                                 | N = 701    | N = 179  | N = 171   | n.s.          |       |             |
| Era of Construction             | Rho = 0.187** | n.s.    | Rho = 0.271** | Rho = 0.337** | n.s.  |             |
|                                 | p = 0.000  | p = 0.000 | p = 0.000  | n.s.          |       |             |
|                                 | N = 701    | N = 179  | N = 171   | n.s.          |       |             |
| Satisfaction                    | Rho = 0.097* | n.s.    |           | n.s.          |       |             |
|                                 | p = 0.011  | p = 0.011 |           | n.s.          |       |             |
|                                 | N = 701    | N = 701  | N = 701   | n.s.          |       |             |
| Education Level                 | n.s.      | Rho = −0.154* | n.s.      | Rho = −0.152* | n.s.  |             |
|                                 | p = 0.039  | p = 0.039 | p = 0.047  | n.s.          |       |             |
|                                 | N = 180    | N = 178  | N = 171   | n.s.          |       |             |
| Years of Residence              | n.s.      | Rho = −0.169* |           | Rho = −0.185* | n.s.  |             |
|                                 | p = 0.024  | p = 0.024 | p = 0.016  | n.s.          |       |             |
|                                 | N = 178    | N = 170  | N = 169   | n.s.          |       |             |
| Population Trend                | n.s.      |          |           |               |       | Mann–Whitney test |
| Perception                      |           |          |           |               |       |             |
| Age                             | n.s.      |          |           |               |       |             |
| Desires                         | n.s.      |          |           |               |       |             |
| Gender                          | n.s.      | Average (F) = 3.63** | Average (F) = 2.38* | n.s. | Mann–Whitney test |
|                                 | p = 0.000 | Average (M) = 2.87** | Average (M) = 2.81* |       |             |
|                                 |           |          |          |               |       |             |

(Continued)
| Ownership          | Average (Owner) = 2.41** | Average (Owner) = 2.83** | Average (Owner) = 1.18** | Average (Owner) = 2.69* | n.s. |
|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|------|
| Average (tenant)  | = 3.00**                 | = 3.65**                 | = 2.91**                 | = 2.31*                  | p = 0.044 |
|                   |                         |                         |                          |                          |      |
| WTP               | n.s.                     | NOT WTP**                |                          |                          |      |
|                   |                          |                          |                          |                          |      |
| Responsibility    | n.s.                     | Municipality* p = 0.019  | Government* p = 0.005    | Other institutions** -p = 0.000 | Kruskal–Wallis test N = 171 |
|                   |                          |                          |                          |                          |      |
|                   |                          |                          |                          |                          |      |
Table 9. Bivariate correlations and non-parametric tests regarding the policy theme of environmental actions for the full sample and each city subsample.

| Environmental Actions versus … | Overall | Oporto | Barreiro | Peso da Régua | Moura | Test used |
|--------------------------------|---------|--------|----------|---------------|-------|-----------|
| Age                            | Rho = −0.074 | n.s.  |          | Rho = −0.188** | p = 0.014 | Spearman’s rho |
|                                | N = 701 |        |          |               |       |           |
| Education Level                | Rho = 0.078* | n.s.  |          | Rho = 0.190*  | p = 0.011 | Spearman’s rho |
|                                | p = 0.040 |        |          |               |       |           |
|                                | N = 699  |        |          |               |       |           |
| Era of Constructions           | Rho = −0.087* | n.s.  |          | Rho = −0.184* | p = 0.043 | Spearman’s rho |
|                                | p = 0.022 |        |          |               |       |           |
|                                | N = 701  |        |          |               |       |           |
| Population Trend Perception    | Rho = 0.111 |       |          | Rho = 0.189*  | p = 0.13  | Spearman’s rho |
|                                | p = 0.004 |        |          |               |       |           |
|                                | N = 660  |        |          |               |       |           |
| Desires                        | Rho = −0.081* | n.s.  |          |               |       | Spearman’s rho |
|                                | p = 0.033 |        |          |               |       |           |
|                                | N = 696  |        |          |               |       |           |
| Income                         | n.s.     |        |          | Rho = 0.246** | p = 0.004 | Spearman’s rho |
|                                |          |        |          |               |       |           |
|                                | n.s.     |        |          |               |       |           |
| Household                      |          |        |          |               |       | Mann–Whitney test |
| Years of Residence             |          |        |          |               |       |           |
| Satisfaction                   |          |        |          |               |       |           |
| Gender                         |          |        |          |               |       |           |
| Ownership                      |          |        |          |               |       |           |
| WTP                            |          |        |          |               |       |           |
| Responsibility                 | Municipality** | Municipality** | n.s.  | Other institutions** | p = 0.000 | Kruskal–Wallis test |
|                                | p = 0.000 | p = 0.005 |          |               |       |           |
|                                | N = 701  | N = 180  |          |               |       |           |
as to economic concerns that assume high relevance when citizens are struggling with an economic crisis.

**Conclusions**

This paper aimed to shed light on an understudied issue in Portugal: bottom-up policy choices for shrinking cities. Those choices were identified by interviewing residents of four shrinking cities in Portugal (Oporto, Barreiro, Moura and Peso da Régua), and asking what were their preferred policies. Two possible approaches for dealing with urban shrinkage are identified in the literature: to find ways of attracting new residents or to secure the necessary living standards so that residents remain. Whatever the approach to be taken, our results highlight the need to understand the link between policies preferred by residents and their demographic and socio-economic profiles.

The fact that *Economic Revival* was the most important policy for all four studied cities could lead to the conclusion that despite the differences between cities and the causes of shrinkage, policy-making can in some instances be universal. Without neglecting the high importance of economic activity, it is important to consider that Portugal is currently undergoing a severe economic crisis, which has inevitably influenced the results obtained. An example of this is that young residents are more supportive of economic revival policies, because they are more severely affected by unemployment compared with other age groups. Older inhabitants show lower levels of concern with economic revival compared with younger residents, thus contradicting some of the literature-based expectations regarding the extent to which older citizens value the availability of jobs or good schools.

The results obtained also demonstrate that the causes of shrinkage influence residents’ responses when the policies that were ranked as second most important are considered, with different policies being ranked after the first choice in the four cities. In the case of Oporto, because the city has undergone suburbanization and therefore has old, dilapidated buildings in its city centre that are in need of intervention, *Building Interventions* was prioritized by residents as the third most important policy for the city.

Deindustrialization is known to lead to abrupt changes in societies, which might explain that in Barreiro, the more vulnerable residents (older citizens and women) ranked *Safety and Accessibility* as a very important policy. In fact, Barreiro is safer than Oporto, according to crime statistics; however, this high ranking of this policy is not observed for Oporto, suggesting that the perception of safety does not necessarily reflect official figures. Differences with respect to the existence of brownfields and the cities’ layouts help to explain why safety is perceived so differently. Citizens living in the most remote city, Moura, value policies that promote *Safety and Accessibility* and the availability of *Public Services*.

Furthermore, the results show that current residents are supportive not only of policies that affect them directly but also of those that can attract new residents; hence, a combination of policies to deal with shrinkage seems to be in agreement with residents’ preferences. The most striking example of this is the case of Moura, where the *Safety and Accessibility* policy theme was found to be related to residents’ desire for an increase in the city’s population.

The results highlight the low importance given to *Environmental Actions*. The reason for this might lie in the economic crisis faced by Portugal: with all the corresponding concern about public safety, the low provision of public services, and lower available income to restore properties, residents in such a context will almost inevitably
place environmental concerns at the end of their list. However, international experience has shown that policies targeting an increase in environmental quality, such as gardening or greening, have been effective in helping deal with urban shrinkage, but perhaps under more favourable economic conditions.

Age and gender explain many of the differences found in the importance attached to the selected policies. However, these results pose new challenges for politicians, because as population composition becomes gradually biased towards the elderly and women, concerns about safety, accessibility, and public services become more relevant, compelling politicians to prioritize those policies that are more preferred by voters. Nevertheless, if economic revival is relegated in importance, the economic sustainability of shrinking cities will be jeopardized, possibly leading to unavoidable and continuous shrinkage. Politicians are caught between a trade-off: try to please the younger citizens and take the risk of losing forthcoming elections, or follow the preferences of the older citizens and most likely compromise the economic and social sustainability of municipalities and the cities within.

The results provide insights into residents’ preferences for policies, which can be the starting point of a deliberation process to deal with city shrinkage. However, the results also highlight the influence of the current situation and preconceived ideas; hence a process of co-construction of policy options might be fruitful. This points to an important future research avenue, which is the deepening of the discussion promoted by this consultation process using participatory approaches.

Funding
This work was funded by the European Regional Development Fund (ERDF) through the Operational Programme for Competitiveness Factors and by national funding from the Foundation for Science and Technology under the project EXPL/ATP-EUR/0464/2013 – ‘Policy Guidelines for Regeneration in Shrinking Cities’.

Notes
1. ‘Seniors’ or ‘elderly’ refers to residents ≥ 65 years old.
2. ‘Children’ refers to residents < 15 years old.
3. Purchasing power is the value of a particular monetary unit in terms of the goods or services that can be purchased with it.

References
Abbott, P., & Sapsford, R. (2005). Living on the margins: Older people, place and social exclusion. *Policy Studies*, 26(1), 29–46.
Alves, M. L., & Allegretti, G. (2012). (In) stability, a key element to understand participatory budgeting: Discussing Portuguese cases. *Journal of Public Deliberation*, 8(2), Article 3. Retrieved from: http://www.publicdeliberation.net/jpd/vol8/iss2/art3
Andersen, H. S. (2002). Excluded places: The interaction between segregation, urban decay and deprived neighborhoods. *Housing, Theory and Society*, 19, 153–169.
Bailey, D., & Cowling, K. (2011). Rebuilding the city: A focus for European industrial policy? *Policy Studies*, 32, 347–364.
Beauregard, R. A. (2009). Urban population loss in historical perspective: United States, 1820–2000. *Environment and Planning, 41*, 514–528.
Bento, A. M., Franco, S. F., & Kaffine, D. (2011). Welfare effects of anti-sprawl policies in the presence of urban decline. *Agricultural and Resource Economics Review*, 40, 439–450.
van den Berg, L., Drewett, R., Klaassen, L. H., Rossi, A., & Vijverberg, C. H. T. (1982). *Urban Europe: A study of growth and decline*. Oxford: Pergamon Press.
Berry, B. J. L. (Ed.). (1977). *Urbanization and counter urbanization*. Urban Affairs Annual Reviews, Vol. II. London: Sage.

Blasius, J., & Friedrichs, J. (2007). Internal heterogeneity of a deprived urban area and its impact on resident’s perception of deviance. *Housing Studies*, 22, 753–780.

Bonaiuto, M., Formara, F., & Bonnes, M. (2006). Perceived residential environment quality in middle- and low-extension Italian cities. *Revue européenne de psychologie appliquée*, 56(1), 23–34.

Chaland, N., & Magzul, L. (2008). Understanding and responding to neighbourhood decline and renewal. The Canadian Community Economic Development Network for the Canadian Housing and Renewal Association.

Cheshire, P. (1995). A new phase of urban development in Western Europe? The evidence for the 1980s. *Urban Studies*, 32, 1045–1063.

Comstock, N., Dickinson, L. M., Marshall, J. A., Soobader, M.-J., Turbin, M. S., Buchenau, M., & Litt, J. S. (2010). Neighborhood attachment and its correlates: Exploring neighborhood conditions, collective efficacy, and gardening. *Journal of Environmental Psychology*, 30, 435–442.

Cortese, C., Haase, A., Grossmann, K., & Ticha, I. (2014). Governing social cohesion in shrinking cities: The cases of Ostrava, Genoa and Leipzig. *European Planning Studies*, 22, 2050–2066.

Costa, M. N. (2013). How participatory budgeting changes the meaning and practices of citizenship. *Florianópolis*, 12, 301–320.

Couch, C., & Karecha, J. (2006). Controlling urban sprawl: Some experience from Liverpool. *Cities*, 23, 355–363.

Downs, A. (1981). *Neighborhoods and urban development*. Washington, DC: Brookings Institution (pp. 189).

Elzerman, K., & Bontje, M. (2015). Urban shrinkage in Parkstad Limburg. *European Planning Studies*, 23(1), 87–103.

Epple, D., Gordon, B., & Sieg, H. (2010). Drs. Muth and Mills meet Dr. Tiebout: Integrating location-specific amenities into multi-community equilibrium models. *Journal of Regional Science*, 50(1), 381–400.

European Commission. (2010). *Investing in Europe’s future*. Fifth Report on Economic and Social Cohesion. Brussels: DG Regional Policy.

Friedrichs, J. (1993). A theory of urban decline: Economy, demography and political elites. *Urban Studies*, 30, 907–917.

Friedrichs, J., & Blasius, J. (2009). Attitudes of owners and renters in deprived neighbourhood. *International Journal of Housing Policy*, 9, 435–455.

Gabriel, S. A., Faria, J. A., & Moglen, G. E. (2006). A multiobjective optimization approach to smart growth in land development. *Socio-Economic Planning Sciences*, 40, 212–248.

Gradstein, M., & Kaganovich, M. (2004). Aging population and education finance. *Journal of Public Economics*, 88, 2469–2485.

Guimarães, M. H., Barreira, A. P., & Panagopoulos, T. (2014, 10–11 July). Shrinking cities in Portugal – Where and why. Paper presented at the 20th APDR Congress, Évora, Portugal.

Guimarães, M. H., Madureira, L., Nunes, L. C., Santos, J. L., Sousa, C., Boski, T., & Dentinho, T. (2014). Using Choice Modeling to estimate the effects of environmental improvements on local development: When the purpose modifies the tool. *Ecological Economics*, 108, 79–90.

Haase, A., Bernt, M., Großmann, K., Mykhnenko, V., & Rink, D. (2013). Varieties of shrinkage in European cities. *European Urban and Regional Studies*, 1–17. doi:10.1177/0969776413481985

Haase, A., Rink, D., Grossmann, K., Bernt, M., & Mykhnenko, V. (2014). Conceptualizing urban shrinkage. *Environment and Planning A*, 46, 1519–1534.

Hesse, M. (2006). Suburbanization. In P. Oswalt (Ed.), *Atlas of shrinking cities* (pp. 96–97). Ostfildern: Hatje Cantz.

Hoekveld, J. J. (2014). Understanding spatial differentiation in urban decline levels. *European Planning Studies*, 22, 362–382.

Hollander, J. B., & Németh, J. (2011). The bounds of smart decline: A foundational theory for planning shrinking cities. *Housing Policy Debate*, 21, 349–367.

Hollbach-Grömig, B., & Trapp, J. (2006). *The impact of demographic change on local and regional government – research project*. Council of European Municipalities and Regions – CEMR, Brussels.
Hospers, G.-J. (2011). Place marketing in Shrinking Europe: Some geographical notes. *Tijdschrift Voor Economische En Sociale Geografie*, 102, 369–375.

Hospers, G.-J. (2014). Policy responses to urban shrinkage: From growth thinking to civic engagement. *European Planning Studies*, 22, 1507–1523.

Kamalipour, H., Yeganeh, A. J., & Alalhesabi, M. (2012). Predictors of place attachment in urban residential environments: A residential complex case study. *Procedia – Social and Behavioral Sciences*, 35, 459–467.

Kantor, P., & Savitch, H. V. (2005). How to study comparative urban development politics: A research note. *International Journal of Urban and Regional Research*, 29(1), 135–151.

Kauko, T. (2011). An evaluation of the sustainability of inner city residential projects. *Housing, Theory and Society*, 28, 144–165.

Klingholtz, R. (2009). Europe’s real demographic challenge. *Policy Review*, 157, 60–70.

Lindsey, C. (2007). Smart decline. *Panorama*, 15, 17–21.

Mallach, A. (2010). *Facing the urban challenge: The Federal Government and America’s older distressed cities*. Washington, DC: The Brookings Institution, Metropolitan Policy Program.

Martinez-Fernandez, C., Audirac, I., Fol, S., & Cunningham-Sabot, E. (2012). Shrinking cities: Urban challenges of globalization. *International Journal of Urban and Regional Research*, 36, 213–225.

Mellander, C., Florida, R., & Stolarick, K. (2011). Here to stay – The effects of community satisfaction on the decision to stay. *Spatial Economic Analysis*, 6(1), 5–24.

Merrilee, B., Miller, D., & Herington, C. (2013). City branding: A facilitating framework for stressed satellite cities. *Journal of Business Research*, 66(1), 37–44.

Metzer, J. T. (2000). Planned abandonment. The neighbourhood life-cycle theory and national urban policy. *Housing Policy Debate*, 11(1), 7–40.

Montén, A., & Thum, M. (2010). Ageing municipalities, gerontocracy and fiscal competition. *European Journal of Political Economy*, 26, 235–247.

Mykhnenko, V., & Turok, I. (2008). East European cities – patterns of growth and decline, 1960–2005. *International Planning Studies*, 13, 311–342.

OECD. (2003). *Low Fertility Rates in OECD Countries: Facts and Policy Responses*. OECD Social, Employment and Migration Working Papers, Paris.

Oswald, P., & Rieniets, T. (Eds.). (2006). *Atlas of Shrinking Cities*. Ostfildern, Germany: Hatje Cantz Publishers.

Oswald, P., & Rieniets, T. (2007). *Global context. Shrinking Cities*. Retrieved July 2014, from http://www.shrinkingcities.com/globaler_kontext.0.html?&L=1

Oswalt, P. (Ed.). (2005). *Shrinking Cities: International research*, Vol. 1. Ostfildern, Germany: Hatje Cantz.

Panagopoulos, T., & Barreira, A. P. (2012). Perceptions and shrink smart strategies for the municipalities of Portugal. *Built Environment*, 38, 276–292.

Parkes, A., Kearns, A., & Atkinson, R. (2002). What makes people dissatisfied with their neighborhoods? *Urban Studies*, 39, 2413–2438.

Perez, F. R., Fernandez-Mayoralas, G., Rivera, F. E. P., & Abuin, J. M. R. (2001). Ageing in place: Predictors of the residential satisfaction of elderly. *Social Indicators Research*, 54, 173–208.

Rangel, A. (2003). Forward and backward intergenerational goods: Why is social security good for the environment? *The American Economic Review*, 93, 813–834.

Rappaport, J. (2007). Moving to nice weather. *Regional Science and Urban Economics*, 37, 375–398.

Reckien, D., & Martinez-Fernandez, C. (2011). Why do cities shrink? *European Planning Studies*, 19, 1375–1397.

Rieniets, T. (2009). Shrinking cities: Causes and effects of urban population losses in the twentieth century. *Nature and Culture*, 4, 231–254.

Rink, D., & Haase, A. (2012). Protest, participation, empowerment: Civic engagement in Shrinking Cities in Europe: The example of housing and neighbourhood development. In A. Haase, G.-J. Hospers, S. Pekelsma, & D. Rink (Eds.), *Front-runners in innovative citizen participation – Shrinking Areas* (pp. 29–39). The Hague: European Urban Knowledge Network.

Rust, E. (1975). No growth: *Impacts on metropolitan areas*. Lexington, MA: Lexington Books.

Smith, W. R., Torstensson, M., & Johansson, K. (2001). Perceived risk and fear of crime: Gender differences in contextual sensitivity. *International Journal of Victimology*, 8, 159–181.
Sousa, S. A. (2010). Planning for shrinking cities in Portugal. Submitted to the Faculty of Engineering of the University of Oporto, in partial fulfilment of the requirements for the degree of Doctor in Civil Engineering.

Stabler, J. C., & Olfert, M. R. (2002). Saskatchewan’s communities in the 21st Century. From Places to Regions. Regina: Canadian Plains Research Center.

Strohmeier, K. L., & Bader, S. (2004). Demographic decline, segregation, and social urban renewal in old industrial Metropolitan Areas. German Journal of Urban Studies, 1, 1–14.

Turok, I. (2004). Cities, regions and competitiveness. Regional Studies, 38, 1069–1083.

Turok, I., & Mykhnenko, V. (2007). The trajectories of European cities, 1960–2005. Cities, 24, 165–182.

Vasconcelos, L. (2007). Participatory governance in complex projects. In G. Gunkel, & M. Sobral (Eds.), Reservoir and river basin management: Exchange of experiences from Brazil, Portugal and Germany (pp. 114–124). Technical University of Berlin.

Videira, N., Antunes, P., & Santos, R. (2009). Scoping river basin management issues with participatory modelling: The Baixo Guadiana experience. Ecological Economics, 68, 968–978.

Vigdor, J. L. (2010). Is urban decay bad? Is urban revitalization bad too? Journal of Urban Economics, 68, 277–289.

Wiechmann, T. (2008). Errors expected aligning urban strategy with demographic uncertainty in shrinking cities. International Planning Studies, 13, 431–446.

Wiechmann, T., & Pallagst, K. M. (2012). Urban shrinkage in Germany and the USA: A comparison of transformation patterns and local strategies. International Journal of Urban and Regional Research, 36, 261–280.

Woldoff, R. A. (2002). The effects of local stressors on neighborhood attachment. Social Forces, 81(1), 87–116.