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The Role of Open Spaces in the Future of Depopulated Urban Environments

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Declaration

The work presented in this dissertation is, to the best of my knowledge and belief, original and my own work, except as acknowledged in the text.

The material has not been submitted, either in whole or in part, for a degree at this or any other university.

Maria Francisca Queiroz e Mello Machado Lima Domingues

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"We must accept finite disappointment but never lose infinite hope"

Martin Luther King

Abstract

The number of citizens living in urban areas worldwide is predicted to increase in future decades. However, this projected increase is mainly due to the magnetic power of so-called megacities. Worldwide, many intermediate cities, especially in the most developed countries, have had considerable population losses in the past decades and this trend is expected to continue.

When a city loses a high percentage of its population within a short period of time, the traces of that loss become strongly apparent. Abandonment is followed by dereliction, such that the urban fabric can become randomly punctuated with uninhabited spaces where previously present human constructions have been destroyed, and social instability can ensue. The attraction of the city to newcomers then becomes increasingly compromised, and the cycle of decline is harder to overcome. Some cities have developed strategies to redress the situation, such as restricting urban sprawl, demolitions, urban agriculture, rightsizing infrastructure or permitting biodiversity sanctuaries. However, few academic studies have focused on the ways that residents, and potential newcomers, perceive this situation and react to it. Obtaining a deeper understanding of residents' perceptions might allow the development of targeted strategies to promote healthier, more attractive and safer environments for these communities, as well as enhancing their potential for newcomers.

The research aim, therefore, is to understand the key factors that determine the attractiveness of these urban abandoned spaces for different stakeholder groups, namely, residents of depopulating, and growing, neighbourhoods, and house searchers. Three different methods were used sequentially to explore this quest: interviews with experts, focus groups and conjoint analysis. Conjoint analysis is one of the most robust methods to explore people's preferences, by presenting respondents with possible future change scenarios. The study was undertaken in Lisbon (PT) and Genoa (IT), two southern European cities that have experienced population decline, in some areas, in the last three decades.

The results of the interviews and focus groups, for both cities, show that while people are naturally resilient to de-densification scenarios, one key concern, when discussing their

neighbourhoods in this context, is related to community support. The results from the conjoint analysis corroborate the importance of having a close community for people living in depopulating environments, namely, in Lisbon. The results also show that good quality green spaces are an attraction factor for house searchers. These differences show how the provision of social support in depopulating urban environments might be a determining factor in the stabilization of these neighbourhoods and also, how the presence of good quality green spaces might enhance its attractiveness to newcomers.

Social support, therefore, should be given serious consideration in any political, social, architectural intervention within depopulating contexts. Moreover, the presence of green spaces of better quality might be not only a key factor in attracting new residents, but simultaneously, play a crucial role in enhancing the physical and mental health of particularly vulnerable communities, and enhance social interaction.

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Examiners

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Finally, I would like to dedicate this thesis to my grandmother, Maria do Céu and to my grandaunt, Maria Violante, two inspiring examples of stoicism, perseverance and hope, who sadly passed away during this doctoral project.

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List of Abbreviations

QoL – Quality of Life

PA – Place Attachment

Lx – Lisbon

Ge – Genoa

G1% - Genova meno uno per cento

MALx – Metropolitan area of Lisbon

MAGe – Metropolitan area of Genoa

UT – Urban Typology

PD – Population Density

OGST – Open and Green Spaces' Typology

OGSQ – Open and Green Spaces Quality

COMM – Community

SEC – Security

Depop. – Depopulating Neighbourhoods

Grow. – Growing Neighbourhoods

HS – House Searcher

Preface

When reading Pedro Almeida Vieira's book, *O Estrago da Nação* (2003) – meaning "The Damaging of the Nation" – I was intrigued by a chapter dedicated to the abandonment of old city cores in Portugal. The level of population losses, sometimes reaching 40%, as in the case of Lisbon's city centre, made me realise that the city where I was born, and where I have always lived, could be in serious danger of widespread dereliction and collapse. Although the book was written more than 10 years ago, a short walk today in the oldest neighbourhoods of Lisbon, like Alfama, Mouraria, Bica or even Avenidas Novas, show that this fear is still relevant. Derelict and abandoned buildings are so common that they are perceived today as a natural part of the city.

By exploring this issue further, it became apparent that although I continued to hear about urban sprawl and the penetration of the city into the rural landscape, the most important architectural assets of Portugal's capital city were in danger of collapsing due to abandonment. This paradox has been ignored and policymakers have not been able to reverse this situation markedly, apart from achieving some small measures of success. This apparent indifference to the increasing presence of abandoned and empty buildings led me to the view that there was a need to have a national debate on the topic and that I could contribute to this debate through research by raising informed awareness and by offering technical solutions to the problem.

As Lisbon is a very dense city, with difficult access to green spaces of good quality, two questions came to mind: firstly, how could urban strategies change in order to preserve city centres and avoid chaotic urban sprawl? Secondly, how could we take advantage of such a situation to change the historical core into a greener place? These are the two questions that underpin my doctoral project.

I have been a landscape architect since 2005 and although I worked in design practice, both independently and as a collaborator in different offices, I have always maintained a link to research via the University of Lisbon and collaborations with Prof. Adriana Veríssimo Serrão, who co-supervised my graduate thesis on Landscape Aesthetics. The impact that green spaces have on people has interested me since a young age and later, professionally. The influence that contact with "natural" environments has on people's wellbeing is striking and not surprisingly, it

has sparked the interest of so many thinkers and philosophers throughout history. The endowment of cities with better green spaces has well-founded benefits. However, by researching this topic more extensively in the context of this doctoral thesis, I became more aware that incorporating quality green spaces into cities is not a straightforward issue.

Therefore, I hope that these research findings will make a small contribution to the debate and can inform the strategies that will prove most effective in terms of interventions in depopulating urban environments in a southern European context.

1. Introduction

Since 1950, the shift of industrial power from Western to developing countries, plus a constant decrease in birth rates in developed countries, high levels of suburbanisation, and peripherisation, have led to a rise in the number of entire cities, and/or urban neighbourhoods, with sharp negative growth rates, especially in the northern hemisphere (Fritsche et al., 2007; Oswalt, 2008; Reckien & Martinez-Fernandez, 2011; Rink, et al., 2012). If, in the beginning of the twentieth century, depopulation was seen as a positive sign, i.e., as a sign of 'unslumming' and better living conditions, in the last decades, sharp and prolonged population losses started to cause some concern.

Urban areas with negative population trends seem to go through similar cyclical processes: declining economies; low employment rates; low public and private investment capacity (Fritsche et al., 2007); increased social segregation (Haase & Seppelt, 2008); falling birth rates (Kabisch, 2008), extensive demolitions and, consequently, rising urban vacancies (increasing numbers of empty buildings) (Haase & Seppelt, 2008). These factors deepen the fragility of the employment market and reinforce the cycle of decline. Different cities have been adopting different strategies to address these matters, ranging from urban sprawl restrictions – Liverpool (Rink, et al, 2012) – demolition plans for health and safety control – Detroit (Neill, 1995), Saint Louis (Moutaud, 2010) and Leipzig (Schetke & Haase, 2008) – some with post reinforcement of green infrastructures – Leipzig (Schetke & Haase, 2008) – or urban agriculture in vacant sites – Detroit (White, 2011) –, rightsizing infrastructure – Detroit (Anon, 2012a) – land banks – Ohio (Weiland, 2011) – biodiversity sanctuaries' expansion – Berlin (Langer, 2012) –, and/or seed banks (Lockman, 2013).

Historically, periods of urban decline are associated with population reconcentration and enclosure, tighter community control and simultaneous protection, smaller and enclosed urban public spaces and increasing self-sufficiency. As cities are the joint product of major planning acts and numerous individual acts, it is important to understand residents' perceptions of the changes in depopulating contexts in order to better understand the future of these environments in an era of potentially higher self-sufficiency and stewardship. In fact, there has not been much attention given to the impacts on people's perception of place, their sense of belonging, and their new desires or needs relative to the public realm of cities in depopulating contexts.

The aim of this research, then, is to understand how depopulation can affect (1) residents' perceptions of their depopulating residential neighbourhoods, (2) their sense of belonging and place attachment, (3) the needs and desires that these dwelling contexts can retrigger more

intensely, and (4) what changes are more effective in attracting new dwellers. The aspects of a neighbourhood that are likely to be more significant in depopulating environments are expected to be those that can make a neighbourhood more attractive for new and current residents. Therefore, they are strategically and politically more relevant in avoiding further population losses on two fronts: attracting new residents and halting further population losses. Given this research is in the field of landscape architecture, there is a especial focus on, and interest in, the role that open/green/public spaces might have under these circumstances.

In order to pursue the aims of this research, a mixed-method research approach was adopted, that used both qualitative and quantitative methods targeted at two case study cities: Lisbon and Genoa, two European cities undergoing persistent population losses since the 70's in some core areas. Genoa lost approximately 30% of its population overall, and Lisbon city council lost approximately 40% of it's core population in the same time-frame.

There were three different stages in the research process. The first stage comprised a qualitative exploration of the views of different stakeholders, like politicians, the staff of various institutions, namely, in city councils, as well as academics. The second stage consisted of a qualitative descriptive exploration of the perceptions of residents of depopulating neighbourhoods with regards to their residential areas. Finally, the third stage consisted of a quantitative descriptive investigation into the preferences of three population samples: residents of depopulating neighbourhoods, residents of non-depopulating neighbourhoods (control group); and house searchers (control group) – regarding hypothetical scenarios of neighbourhoods. More specifically, the third research tool is conjoint analysis, a tool that ranks respondents' preferences of the different attributes that described the hypothetical scenarios.

The thesis is structured in four major parts. The first part encompasses a short historical contextualization, the situation regarding shrinking cities in the 20th/21st century and the potential role of open spaces within these contexts. The second part explores the aims of this research, its hypothesis, and the research strategies and methodologies applied to address them. The third part presents the results of the three different research approaches and finally, the fourth part presents the discussion of the results, conclusions and the recommendations for further research.

SECTION I

2. Urban Depopulation. A Problem?

2.1 Foreword

Throughout history, cities have developed via consecutive processes of destruction, construction and preservation according to different population needs, to economic growth or decline, to migrations, to war periods, to plagues or to natural disasters. For a city's shape, growing and declining periods are equally important, and both leave traces in the shape of a city.

Historical and archaeological evidence of periods of economic shrinkage shed light into our understanding of declining societies and their urban settlements[1] (see point 2.2). A declining period in a society's history can mark a point of no return, where cities can simply be abandoned forever, as the example of Palmyra, but in most cases, shrinkage is a moment of rebirth and re-adaptation (Vale & Campanella, 2005). Cities have the capacity to reinvent themselves, resist, and, later, thrive (Wessman, 2007). The Roman city is an interesting example of this urban resilience, and it is referred to many times throughout this thesis. After the decline of the Roman Empire, the city changed significantly but some of the urban remnants of the empire lay untouched. Some of its forms were not preserved, but neither were they demolished or destroyed, rather, they ended up as ruins. Since the Renaissance period, these ruins of ancient buildings are

[1] We refer to societies and urban settlements since we are considering that cities work within networks of exchangeable goods (trade), people and the knowledge that form societies. There can be societies based on a strong city, but this city is connected to others. So although each city has its own independent timeline of events, there are general trends that can influence larger numbers of interconnected cities and there are some historical periods when large numbers of cities have had astonishing simultaneous large-scale contractions influenced by the same wide scoping trends, e.g., in Europe, the decline of the Roman Empire and the deadly plague of the 14th century.

presented in western literature, painting or poetry to extol the glories of this past civilization and their human capacities (Diamond, 2005; Jorgensen, 2012). However, their most true and crude meaning is the decline, disaster and misfortune of the former inhabitants (Jorgensen, 2012).

In the 21st century, postmodern era, we have evidence of the proliferation of urban ruins in some cities but these ruins of our urban times,

> "are too new, too *ubiquitous*, too extensive or too closely bound up with economic collapse, war or natural disaster to evoke the same feelings of awe or pleasurable melancholy" (Lyons, 1997, quoted in Jorgensen, 2012, p.4).

Although some artists today are also interested in the theme of contemporary ruins – e.g. *Alexandre Farto*, *Philip Gowman* and *Yves Marchand & Romain Meffre* – the feelings that their work convey are divergent to the ones portraying ancient constructions. The ancient ruins have gained a certain cachet by dint of temporal and physical distance whereas the contemporary ones remind us that decline can be closer than expected, putting at risk the qualities of the environments in which we all seek to live.

Urban depopulation, then, is not a new process. It has happened (point 2.2), and it is happening now in some places in the world (point 2.4). Whether it will be a recurrent trend in the next century or not, we cannot predict, but we can certainly explore its symptoms and consequences in order to better understand current and potential future social challenges.

2.2 Collapsing societies and urban settlements in history

In *Collapse: How Societies Choose to Fail or Succeed*, Jared Diamond (2005) explores the processes, symptoms and consequences of the decline of some societies, in different historical and geographical contexts. By collapse, the author means:

> "a drastic decrease in human population size and/or political/economic/social complexity, over a considerable area, for an extended time". (Diamond, 2005, p.12)

Based on examples, such as Viking, Easter Island or Mayan societies, Diamond (2005) identifies a five point framework to the comprehension of collapse: (1) *environmental damage*, such as deforestation, soil destruction, over fishing…etc.; (2) *climate change*, such as the current global heating, the retreat of the ice sheet in the so called Ice Age, or prolonged droughts; (3) *hostile neighbours*, that can overcome and conquer a weakened opponent, as in the case of the barbaric invasions through the Roman Empire; (4) *decreased support of allies*, especially when the trading relationships are no longer advantageous[2]; (5) *societal responses to stress*, i.e., the social and political responses to decline, like dominant cultural beliefs or technological frameworks that inadvertently

[2] It is worth mentioning that the allies and the hostile neighbours can be, and often are, the same.

might reinforce decline, or on the contrary, reverse it. Diamond's framework is particularly disturbing when confronted with the world's current reality. Environmental damage throughout the globe today ranges from over-exploitation of tropical forests, animal decimation (from wild animals to fish reserves), over-exploitation of metals, or unprecedented environmental disasters, such as the Deepwater Horizon oil spill in the Gulf of Mexico in 2010. As for the impact of climate change today, the rise in global temperatures (Hegerl et al., 2006; Stott et al., 2001; Stott et al., 2000), putting at risk the ice sheets of the Arctic and Antarctic, with probable consequences in terms of rising sea water levels, is being supported by consistent scientific research results (Gregory et al., 2006). Added to which, there are also the constant conflicts of the last decades over Middle Eastern countries' energy resources. So the question arises: Can we make, or are we making, the most appropriate societal responses to these challenges? Can we reposition some key trajectories allowing a better and more stable future? Many people argue that our technological capacities are more than enough to address the challenges of globalisation, however, the demise of the Mayan or Roman civilizations reminds us that societies with higher levels of technological, artistic, architectural, cultural and linguistic sophistication did not find the tools to prevent their downfall, a downfall that was followed by a long-lasting period of decline. Moreover, in both cases, their respective geographical, fertile positions, accompanied by a mild climacteric pattern, and with no significant territorial barriers (as in the Easter Island case) was advantageous. However, these two examples show that it is not only small scale and undifferentiated societies that may be culturally, technologically behind and geographically isolated that are prone to rupture (Diamond, 2005). Without attempting futurism, we cannot deny the hypothetical possibility of a declining phase in Western culture in the decades or centuries to come. We can not predict it but we can certainly discuss it.

According to different authors (Jacobs, 2005), advanced societies undergoing astonishing setbacks are normally victims of the *use it or lose it* principle. *Use it or lose it* is a neurological principle that defends brain plasticity, meaning that you can prevent the loss of brain cells by activating them in learning or exercising processes. When the brain does not perform determined tasks for long periods of time, it loses the capacity to perform those tasks successfully. It also loses the capacity to perform other tasks since the stagnation process dictates a loss of the number of brain cells (Shors et al., 2012).

The same process can happen collectively in societies going through declining processes (Jacobs, 2005; Diamond, 2005). So although Mayan society has not disappeared, as happened to the Easter Island communities, their technological capacities diminished drastically, and part of that loss can be attributed to collective forgetfulness among other phenomena. Other symptoms of declining societies include a higher level of **(1) suspicion towards strangers** and outside cultures, as happened in the decline of the Islamic Empire or Roman Empire (Jacobs, 2005). In Rome, this fear was physically transposed into the city's shape by means of fortified buildings and

walls as the archaeological work of Christie's (2000) proves, some of them sub-standard builds in very short periods of time, driven by the panic of invasions. Other relevant aspects of the decline process revealed by Christie's archaeological digs in Ancient Rome are: the **(2) co-option** of massive quantities of materials - *spolia* -, and spaces or structures into new purposes and built structures (especially for defensive purposes); the massive **(3) abandonment** of urban proprieties mainly by the elite; the **(4) infrastructure downsize**, such as water and sewage networks; the rebirth of **(5) subsistence agriculture** inside the city walls; and, at later stages, the **(6) reconcentration** of the population, around the two underground aqueducts that were kept functioning[3]. The city that once was the most important European urban hub reaching over one million inhabitants in the 2nd century C.E., only sheltered 30.000 inhabitants in VI century CE (Twine et al., 1992), shrinking until it was an astonishing figure of 5000 inhabitants in early medieval times (Coates-Stephens, 2015)[4].

Similar symptoms are described today in the declining cities of Western societies, as it is explored in point 2.4, but before addressing those questions, it is relevant to better understand what are the current population trends, and if depopulation is in fact a theme worth researching.

2.3 World Population Trends in past decades and today

The world's population has been growing at unprecedented, and exponential, rates in the last two hundred years, especially in cities. For this reason, it is almost anachronistic to discuss population shrinkage, or declining urban contexts. However, world population growth is not homogeneously distributed and is growing at lower rates since 1960, when it reached its peak. Today what seems pertinent to discuss are the impacts of a stable deceleration trend in population growth rates.

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[3] By the end of the empire, the city occupied only 10% of its original size and was mainly concentrated around 2 underground aqueducts, of the original 13 aqueducts that existed (both open air and underground ones) (Twine et al. 1992), and the remaining population inhabited its vicinity. The remaining empty buildings were sometimes reconverted into new uses, in accordance with new needs, or just used as depositories of materials for new structures. The temples were transformed into churches, and old tombstones and friezes were incorporated into new constructions, as, for example, in protective walls, or simply as testimony to the genetic lineage of aristocratic palaces (Lyons, 1997; Christie, 2000). It seems reasonable to assume that it was not entirely by chance that some ruins remained in use while others disappeared but there is not enough research on the factors that led to the preservation of some particular infrastructures and not others.

[4] The evolution of the Early Christian Church structure adds a bit more information to where the migrant population travelled in the early medieval periods. The first parishes were urban communities only, but, with the spread of the Christian religion, and above all, with the spread of the population to the countryside, the concept of parish evolved to that of 'diocese': a territorial region under which a bishop that reports to a cardinal. This change in the early church structure denotes a profound change in the social distribution throughout the territories, from concentrated urban communities, with strong economic bounds and commercial fluxes of long distance, to smaller, more numerous, spread and self-sufficient rural communities, with weak commercial links of shorter distances (Gwinn et al., 1992).

From the beginning of the 19th century, western cities became centres of a paradigmatic shift in the production of, firstly, food then goods. The agricultural and industrial revolutions dictated greater availability of food, an economic boom, a massive migration movement from the countryside into cities, where the main sources of jobs were now located, and consequently, sharp urban transformations, with the destruction of old city walls and overcrowding, and later, urban sprawl and dispersion (Sieverts, 2003; Rykwert, 2000). It is also the epoch of medical discoveries, allowing the expansion of the average life span (vaccinations; anaesthesia improvements, sewage systems), even given the atrocious working conditions (Dorling, 2013). The modern city became a place of mass production, labour specialization, and economic expansion (Rykwert, 2000), and also, a place of anonymity (Simmel,1903).

In 1800, the world's population reached 1 billion after centuries of extremely slow growth rates. In the next 125 years, the world's population grew by another billion, and in the subsequent thirty-five years, still another billion, reaching a total of 3 billion by 1960. Since the beginning of this new population era, economists have been particularly interested in the balance between population numbers and the management of resources. Mainly triggered by Thomas Malthus's writing *An Essay on the principle of Population* (1798), scholars have adopted two opposite perspectives: the pessimistic perspective, announcing "poverty and misery" for future generations as resources would become depleted by an ever-growing population; and the optimistic perspective, predicting technological advancements towards a better use of the same resources, or towards the discovery of potentially new ones, that will allow the continuing growing trend and a healthier society (Bloom, 2011; Lam, 2011; Dorling, 2013).

Optimists seem to have been more precise in their predictions, in face of the 60% increase in population numbers from 1800 to 1960. Although encompassing two world wars and severe economic downturn periods, the population numbers continued to rise, especially in the post Second World War years, in the *baby boom* decades of the 50s and 60s. New alarms were raised, namely, in Paul Ehrlich' writing *Population Bomb* (1968) where, yet again, starvation was foreseen for the next decades. The predictions did not prove correct as new advancements, for example, in agriculture ("the green revolution"), and in birth control grew stronger (Goldstone, 2010; Dorling, 2013).

What was not known then but it is today, is that it is precisely in the 60s that the population growth rate reached its peak. From then until today, although the absolute size of the population continues to grow (Figure 1), the speed with which that growth occurs has become slower, with some authors affirming that we will probably never witness again the previous scale of accelerated population growth (Lam, 2011).

In 2011, the United Nations published a report predicting that for the next 100 years, the growth rate of the world's population would slow down strongly. The average annual growth rate

will reduce 47% if we compare the period between 1960/2000 at the high variant prediction for 2000/2100 (United Nations, 2011).

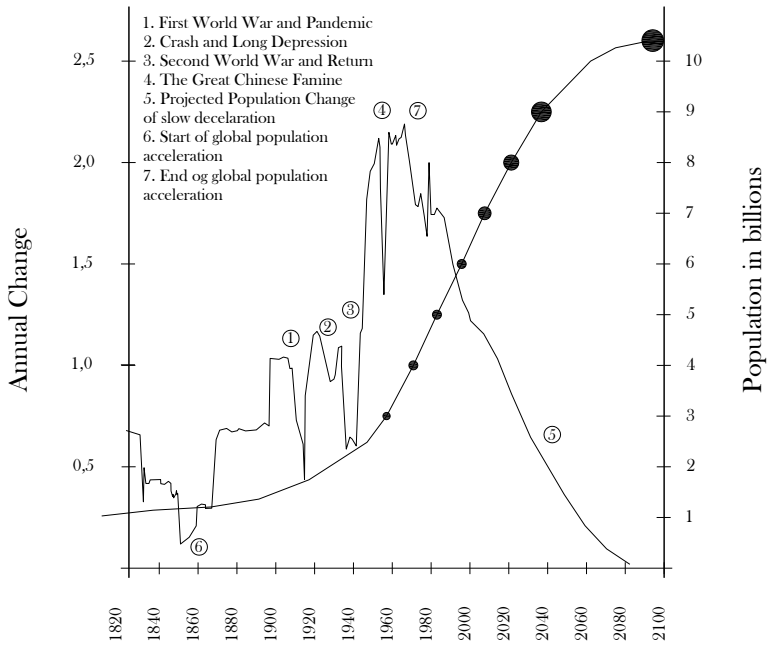

Figure 1. Timeline of world's population growth since 1820 according to population size and annual change, in Dorling, D., 2013. *Population 10 Billion: The coming demographic crisis and how to survive it*, London: Constable, adapted from Angus Madison estimates (1821-2000) and UNPD 2001-2100 projections.

Based on the United Nations data, Professor Jack Goldstone (2010) predicted that this future deceleration will not happen homogeneously, and that what he coined as *The New Population Bomb* has more to do with geographical shifts of economic forefronts, than with major overall growth or decline periods. Basically, Goldstone foresees four changes for the next few decades: (1) the so-called "developed countries" of the northern hemisphere will lose 25% of their relative demographic weight by 2050 compared to the world population; (2) the labour force of the "developed" countries will shrink, and age, un-boosting the economy and raising the need for immigrants; (3) most population growth will be concentrated in younger, poorer and Muslim countries; (4) and finally, for the first time in history, most of the population will be living in cities (Goldstone, 2010).

As seen before, predictions are volatile exercises. If, on the one hand, they do not normally end up being true accounts of the future, they are powerful instruments of analysis and triggers of action. Political and religious changes, technology, innovations in resources management, or the discovery of new power sources, might change dramatically what is predicted today, but future changes are also influenced by today's predictions, by means of selective investment in what a society believes is now more important to address. Richard Heinberg (2011) is one author that

risks some predictions for the future, and he probably is closer to a more pessimistic vision of the future. For Heinberg, the economic crisis that burst in September 2008 is not exactly a financial crisis, nor a real estate crisis, but primarily an ecological one. This crisis will prevent economic growth in the near future due to,

> "the depletion of important resources" (Heinberg, 2011, p.2).

to

> "the proliferation of negative environmental impacts" (Heinberg, 2011, p.2).

and to

> "Financial disruptions due to the inability of our existing monetary, banking, and investment systems to adjust to both resource scarcity and soaring environmental costs" (Heinberg, 2011, p.2).

If this resource crisis becomes a confirmed reality, human societies are not only in an economic downturn but also on a stepping point into a new era. In 2015 several world powers are presenting signs of an economic slowdown (Stewart, 2015). Again, the halt in economic growth is predicted by Heinberg to be felt differently across the world's regions, so that one region's economic growth today, and another's tomorrow, is not the sign of worldwide growth, but of countries' continuous competition for a share of an ever smaller pie[5] (Heinberg, 2011).

Danny Dorling, human geographer from the University of Cambridge in his book, *Population Ten Billion: the coming demographic crisis and how to survive it,* adopts a slightly different position. Although also predicting a new era of decelerated population growth and ecological/resource restrictions, Dorling opts for a more pragmatic approach, admits to being a "practical possibilist", instead of either an optimistic and a pessimistic one, and predicts that the world's population will reach 10 billion in 2090 (Dorling, 2013), after which it will probably decrease rapidly. However, in the meantime, to be able to sustain such numbers of people with limited resources, there is the need for a gradual, but profound change in the way humans use resources - water, food, houses, clothes, cars, computers and other electronic devices - especially in the western world, and a less unequal division of goods between countries. Never-ending economic growth in the West has been taken for granted for a long time but it is now being questioned; world population growth is predicted to continue but at a slower rate; and the ecological stability and accessibility of resources is a constant strategic concern and a potential risk factor for future generations.

This particular research is focused on cities, and here too, the overall share of people living in urban areas is predicted to continue to grow. In fact, since 2007, there are more people in the world living in cities than in rural areas (United Nations, 2014). So, is this topic pertinent?

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[5] Going back to Diamond's (2005) accounts of the symptoms of declining societies in history, the overexploitation of resources is one of them and should be taken into account.

Most predictions about urban population increases are based on the continuation of strong migratory movements from the countryside into cities that are happening more intensely in developing countries (World Bank, 2013). In the USA, Canada, Europe and Japan, many cities have lost important shares of population in the last decades, as is discussed in the next point of this thesis. The stagnation of several western cities has reopened the debate on urban shrinkage, even if, simultaneously, many scholars consider this discussion marginal or not significant. When examining this question more deeply, data shed light on this divergence, namely, the United Nations' report, *World Urbanization Prospects* (United Nations, 2014). According to this report, all cities are expected to continue to attract large numbers of residents. However, this trend is not equally distributed in different city-types and geographical regions. For example, whereas the number of mega-cities (more than 10 million inhabitants) is expected to grow four times and of large cities (5-10 million inhabitants), three times, the number of medium-size cities (1-5 million inhabitants) is only expected to grow twofold. Moreover, megacities are particularly concentrated in Asia and Latin America, while absent from Oceania. And the fastest growing cities worldwide are the ones with less than 5 million inhabitants, but in Asia and Africa. Interestingly, almost 40% of the projected growth in urban population worldwide is concentrated in only three countries: India, China and Nigeria. The UN report discusses these geographical imbalances and presents Europe and Japan as the areas of urban contraction. The report also highlights the comparison between the urbanization rate in different continents since 1950. From this comparison it is possible to conclude that there is an overall deceleration in the average annual rate of change from rural to urban contexts. Whereas in 1950, the annual rates of change of the different continents ranked between one and three per cent, they are now ranked between three tenths and one per cent. However, again, this deceleration is not equally distributed, being Asia and Africa the leaders in worldwide urbanization rates (Figure 2).

So although the overall urban population is expected to continue to rise, the phenomenon of urban shrinkage will probably happen simultaneously especially in medium size cities in the next decades, and therefore, it is presented here as a relevant topic for discussion.

Proportion Urban (per cent)	**1990**	**2014**	**2050**	**Rate of Change 2010/2015**
World	**43**	**54**	**66**	**0,9**
Africa	**31**	**40**	**56**	**1,1**
. Eastern Africa	18	25	44	**1,7**
. Middle Africa	32	44	61	**1,2**
. Northern Africa	46	51	63	**0,4**
. Southern Africa	49	61	74	**0,8**
. Western Africa	30	44	63	**1,6**
Asia	**32**	**48**	**64**	**1,5**
. Eastern Asia	34	59	78	**2,0**
. South/Central Asia	27	35	53	**1,2**
. Central Asia	45	40	54	**0,0**
. South/Eastern Asia	32	47	54	**1,4**
Europe	**70**	**73**	**82**	**0,3**
. Eastern Europe	68	69	78	**0,1**
. Northern Europe	77	81	87	**0,3**
. Southern Europe	65	70	80	**0,3**
. Western Europe	74	79	86	**0,3**
Latin America and Carribean	**71**	**80**	**86**	**0,3**
. Caribbean	58	70	81	**0,8**
. Central America	65	73	82	**0,4**
. South America	74	83	89	**0,3**
North America	**75**	**81**	**87**	**0,2**
Oceania	**71**	**71**	**74**	**0,0**
. Australia/New Zealand	85	89	92	**0,1**
. Melanesia	20	19	28	**0,2**
. Micronesia	62	67	72	**0,2**
. Polynesia	41	42	47	**-0,2**

Figure 2. Proportion of urban population (per cent) and average annual rate of change for different world regions (from United Nations (2014)).

2.4 Shrinking Cities in the 20th and 21st Centuries

Since 1950, the number of cities with depopulation patterns started to be noticed most intensely in many OECD[6] countries, namely, in the United States of America and Canada,

[6] Organization for Economic Cooperation and Development (OECD).

several European countries and Japan. Phillip Oswalt (2008) has tracked 350 cities worldwide suffering population declines, at least temporarily, between 1950 and 2000 (Figure 3).

What was once considered an exception, or a transitional period, can no longer be dismissed. The first serious discussions and analyses on shrinking cities emerged during the 1980s with works such as *Urban Decline and the Future of American Cities* by Katherine Bradbury, et al (1982). Since then, the interest in the topic has risen, as well as research studies on the subject, especially in the last decade.

Figure 3. Shrinking Cities Worldwide 1950-2000 In: Oswalt, P., 2008. *Shrinking Cities* シュリンキング シティ. Berlin: Project Office Philipp Oswalt, pp. 3–28., p.6. illus.

The Shrinking Cities International Research Network, established in 2004 with the support of the Institute of Urban and Regional Development at the University of California, Berkeley, elaborated the following definition of a shrinking city:

> "a densely populated urban area with a minimum population of 10,000 residents that has faced population losses in large parts for more than two years and is undergoing economic transformations with some symptoms of a structural crisis." (Wiechmann, 2007, quoted in Hollander et al. 2009, p.6)

To better understand the common features of such cities, a literature review structured around the DPSIR model was developed. The DPSIR model consists of structural analysis based on the following framework: (1) **D**riving forces, (2) **P**ressures, (3) **S**tates, (4) **I**mpacts, and finally, (5) **R**esponses (Ness et al., 2010).

So what exactly are the (1) driving forces triggering depopulation processes in contemporary cities? Among the general drivers for this phenomenon are the processes of de-industrialisation, peripherisation and, reactions to the post-socialism period (Audirac, et al., 2011; Fritsche et al., 2007; Oswalt, 2008; Reckien, et al., 2011). It is important to have in mind that these drivers do not happen in isolation and are often interrelated. Nevertheless, the categorization of the phenomenon is useful. All of the three causes mentioned act first by disestablishing the economic equilibrium of a city and consequently, they trigger a chain of mutually reinforcing events that lead to a cycle of decay (Fritsche et al., 2007). The first symptom is a decline in the job market, unemployment and the consequent out-migration of young and qualified people to other countries or regions where job availability is higher. With the migration of young working generations, the birth rates - which broadly have been dropping in all developed countries - drop even further and cities become dominated by older demographic groups. A fourth driver – suburbanisation – is also considered by many other authors, like Oswalt (2008), Audirac et al. (2011), Hollander et al. (2009) and Rink et al. (2012). This inner and selective migration process will occur either when there is a demographic contraction, in other words, as a consequence of one of the three drivers already referred to, or when, even in an economic growth period, there is a demand for better housing conditions. In both situations, inhabitants move to neighbourhoods on the suburbs, either because they can afford a better house, as in the case of Detroit (Ryznar & Wagner 2001), or because there is a social housing programme that offers people houses, as in the case of Genoa and Lisbon (Benis 2011; Bini et al. 2011). Therefore, even in cities where the numbers of inhabitants are diminishing considerably, the land consumption and urban sprawl is still the prevalent action of land use change (EEA, 2009; Reckien & Martinez-Fernandez, 2011; Kroll & Haase, 2010). Moreover, an analysis by Haase, et al. (2013) shows that even cities where both population numbers and housing numbers are decreasing, continue the trend of land consumption.

Numerous (2) pressures will unfold from the forces described above, as for example, long-term household vacancies will increase and lead to infrastructure under-use - water, sewage, transport, education and health – (Rink, et al., 2012; European Environmental Agency, 2009; Reckien & Martinez-Fernandez, 2011). In addition, this process has a considerable influence in the energy costs of a city. According to the European Environmental Agency (2009) data, there is an average increase of 31% in the energy bill of a not fully occupied building. Other problems of the same nature can happen at the city scale level, for example, the underused water supply and sewage systems can present challenges in terms of water quality and contamination; the transport systems will tend to become inefficient triggering an increased use of private cars which constrains the access of the more deprived population to social infrastructures, like schools and hospitals, as well as to jobs (EEA, 2009).

Cities with abandonment problems then face a new and unfamiliar (3) state, characterised by social fugue and social segregation (Bini, 2011), vacancies, and the oversupply of infrastructure (Schetke & Haase, 2008; EEA, 2009). Authors like Allweil (2007) and Schatz (2010) defend that the appropriate planning attitude in these situations is to accept the decline instead of perpetuating growth-oriented paradigms that assume the return of the lost population. The growth-oriented paradigms are the ones that perpetuate the land consumption pattern and cities' suburbanisation.

Several authors have detected this trend of perpetuated urban growth-oriented paradigms even in contexts where shrinkage is evident. For example, Bernt, et al. (2014), compared the (4) impacts of long lasting urban shrinkage in the local policies of four European shrinking cities: Liverpool (UK), Leipzig (Germany), Genoa (Italy) and Bytom (Poland). According with his comparison, pro-growth policies are still embedded in the planning agenda in these four cases, and to be able to revert this situation there is the need for a holistic political action and not partial agendas. Also, Cunningham-Sabot & Roth (2013) have reported how strong public investment in river front reactivation in Glasgow, following a growth paradigm, did not seem to have the expected positive results. However, not all decision makers have adopted these strategies.

The political and social (5) responses to urban depopulation can be diverse. When the problem is acknowledged, instead of ignored, one first response is to slowly recover the derelict buildings left by the absent population, in order to raise again the attractiveness of the sites. However, despite the considerable financial efforts of the public sector in many cities, when the depopulation rate is very high within a short period of time, it is very rare for the public sector to have the financial capacity to ameliorate its effects and it becomes difficult to prevent an image of dereliction arising in the minds of city dwellers and visitors. Moreover, when the number of abandoned small spaces starts to be highly significant, not only is there a clear unbalance of offer and demand in the housing market with impacts in the real estate prices (Couch & Cocks, 2011; Rink et al., 2012; Haase et al., 2014) but also, there is an increased risk for the health and safety of the populations (Loftin & McDowall, 1982). There are some examples of cities going through this process with no serious interventions either by lack of financial capacity or by refusal to accept the population decline as a reality, namely, Bytom and Makiivkca (Rink, et al., 2012) both Eastern European cities. As previously mentioned, the impacts on city life have driven public authorities in some other cities to adopt demolition as a solution. This decisive option, especially when there is no foreseeable intention of future occupancy, can have severe impacts: perforation and fragmentation of the urban fabric, a rise in the numbers of brownfields and vacant lands (Haase et al., 2010), social disconnectedness, with the potential loss of competitiveness, creativity and innovation (Carlino et al., 2007; Knudsen et al., 2008). As a side effect, some cities see a spontaneous vegetation growth in these vacant parcels (Ryznar, 2001). The city is redrawn backwards in an unbidden and unplanned process. The number of open spaces increases

exponentially, however, the incorporation of these new 'bits of land' into city life are, most of the time, very challenging. After demolition, Detroit Council did not have the means to rehabilitate the remnant land which remained in a desolated state (Ryan, 2008). As Ryznar (2001) noted, the in-net increase of vegetation in Detroit city (Figure 4) is associated with less positive quality of life indicators, according to the Anson indicators (1901).

The case of Detroit is indeed one of the most well known cases of shrinking cities in the literature. Currently, not more than 20% of the population lives in the city centre, and between 1970 and 1990, not only did half a million people abandon the city but also, 117,000 houses were demolished (Neill, 1995). The council proceeded to massive destructions of abandoned and derelict buildings in the core city choosing to invest in more attractive and peripheral areas, and by doing this, encouraged urban sprawl.

The social, urban and environmental impacts have been sharp. There has been social segregation, of poorer, uneducated and unemployed populations, with impacts on place attachment (B. Brown, 2003), on security and crime rates (Loftin & McDowall, 1982), and also on health and wellbeing (Terschüren et al., 2009; Norman et al., 2011).

Childhood mortality in the inner city of Detroit is twofold higher than the USA national average. The

> "hospital officials cite inadequate public transportation in a city of automobiles and freeways as an obstacle to necessary doctors' visits (Wilkerson, 1987, p.2).

Moreover, studies, as the ones of Rabito et al. (2007) seem to demonstrate a positive correlation between multiple demolitions for urban renewal and increased levels of lead in children's blood.

The image of the city becomes increasingly negative and new investment is less likely to happen where dereliction is perceived as more acute (Kotler et al. 1993). This fact relates to the 'vicinity law' (own translation) that characterises real state markets. This 'law' postulates that the value of a property/flat/building is not only measured by its intrinsic qualities but also by what sits next to it.

Therefore, a derelict street or neighbourhood, is a riskier context for rehabilitation investment, and therefore, private owners tend to avoid such actions (from personal communication from Prof. JCN, real estate expert, 18 April 2012).

Although Detroit is clearly one of the most iconic cases of a shrinking city, there are other cities where demolition was the favoured strategy, namely, in Liverpool (UK), Ivanovo (Russia) and Halle/Leipzig (Germany) (Oswalt, 2006). However, there are significant differences in the impacts of the process on each of these cities as a consequence of different post-demolition decisions.

Mainly due to a slow and steady out-migration, combined with urban regeneration and an economic restructuring, Liverpool, as a whole, has reached, now, a stable situation. Although the city's core lost 175000 people between 1971 and 2008, 28% of its population, the period of decline had already started in the 1930s. This meant that, unlike Detroit, Liverpool policy makers had a longer adaptation period of seven decades to slowly adjust to a new reality. Their approach was two-fold: on the one hand, there was a financial effort to rehabilitate the city centre and on the other, there was a dynamic control and prevention of urban sprawl (Rink, et al., 2012) with the construction of a green belt (Merseyside Green Belt Local Plan). The impacts of the phenomenon were less sharp and recent numbers indicate some stabilisation in the city centre where, in the last decade, there has been a reduction in the number of vacant dwellings from 7,99% in 2000 to 5,76% in 2009 (Couch & Cocks 2011). Also in cases like Florence there has been a restriction to the licenses of new buildings while there exist empty ones in the city[7].

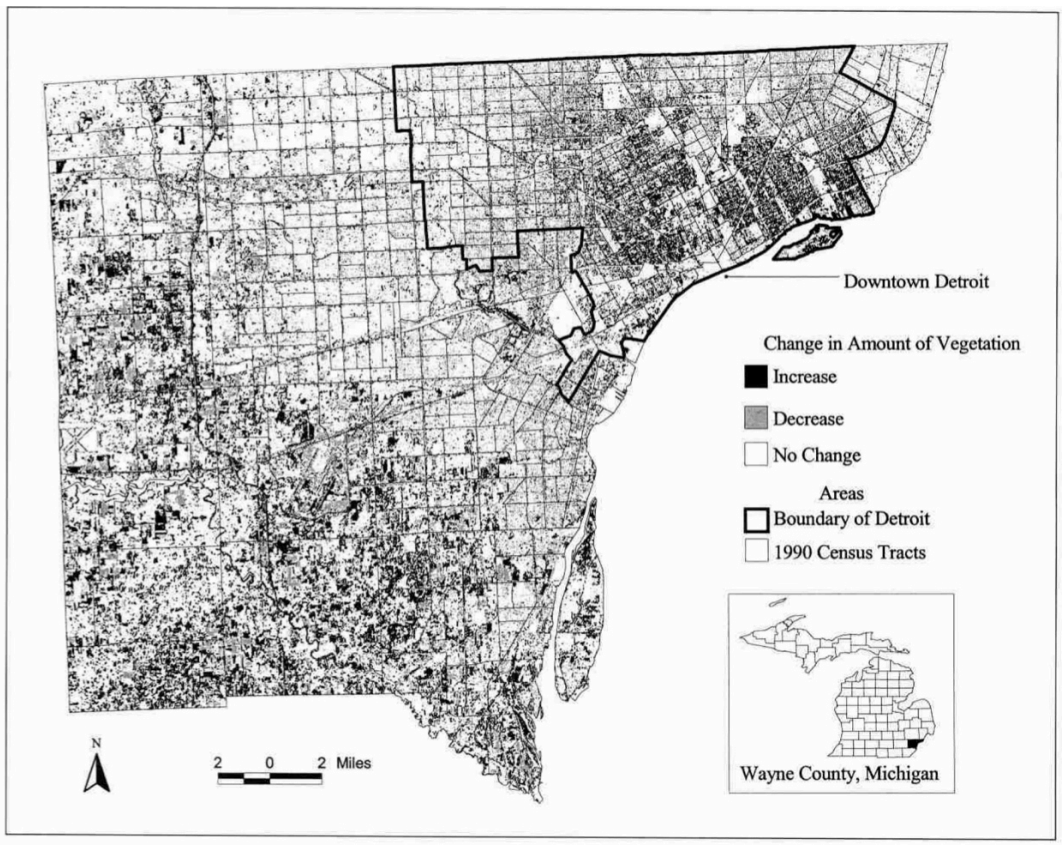

Figure 4. Landsat Vegetation Change Image for Wayne County, Michigan, 1975-1992 In: Ryznar, Rhonda M.; Wagner, T.W., 2001. Using Remotely Sensed Imagery to Detect Urban Change: Viewing Detroit from Space. American Planning Association Journal, 67(3), pp.331. illus.

In Leipzig and Dresden, similar to Liverpool and Detroit, the deindustrialisation process determined the economic decline of the respective cities and a demographic downturn. However,

[7] More information in the following site: http://www.salviamoilpaesaggio.it/blog/

both these German cities adopted a strategy of regulating fragmentation and vacancies using reduced public financial support and investing in public space and green infrastructure. The results have been positive and the Council achieved the aimed demographic stabilization and even an increase in the population size (Figure.5).

In 1980, Dresden, a former industrial power, had 1000 ha of abandoned industrial land. As a strategy of land occupation, a number of parks were designed and built in those territories. However, there was not enough financial capacity to design and maintain the whole area. The authorities decided to recover the landscape by allowing the natural vegetation to come through and instead of a planning approach, the project was based on the "forester" figure – the person that nurtures, protects and knows the forest. Only small and targeted operations were constructed as, for example, pathways, safeguards against dangers and the clearance of some areas for multiple uses. This new management concept has had many positive results. Not only is it more cost efficient but also, it is highly attractive as a play space and as an environmental education space (Dettmar, 2005).

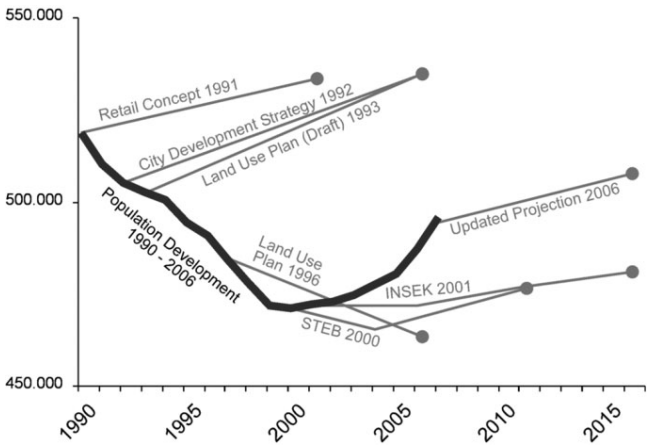

Figure 5. Population development and prognoses in Dresden since 1990 (projected on the basis of the territorial status of the city in December 1999) In: Wiechmann, T. & Pallagst, K.M., 2012. Urban shrinkage in Germany and the USA: A Comparison of Transformation Patterns and Local Strategies. International Journal of Urban and Regional Research, 36(2), pp.261–280. Available at: http://doi.wiley.com/10.1111/j.1468-2427.2011.01095.x [Accessed July 29, 2012]., pp.270. illus.

In Leipzig, vacant land has also been integrated into green structure and so too, in this city, the demographic data have stabilized. From 1933 until 1998, there was a 40% reduction in the population and the vacancy rate was at 20% (Bontje, 2004). The council developed a plan that determined that strategic areas would be developed into ecological corridors and others would be urbanely regenerated and densified. In this way, when a private investor is interested in the redevelopment of a lot, the council not only predetermines the areas where that regeneration can

be developed but also demands the financial support for the recuperation of other areas to be incorporated into the strategic ecological structure for the whole city (Banzhaf et al. 2012).

This approach has had positive effects and the population size has stabilized in the last decades (Banzhaf, 2012). However, Schetke & Haase, (2008) developed a study regarding the incorporation of demotion sites to Leipzig's green infrastructure and found that whereas in some places it's incorporation was costly efficient and ecologically very beneficial, in others these advantages were not found. In the words of the authors of this study:

> "(…) in the future it will become more and more difficult to enhance either green quality or social quality of life, as a surplus of new open spaces will become more a curse than a blessing. This is because there are nearly no ideas existing concerning the final purpose of the new open space or green area as to whether it should be used as a site for business, leisure or art" (Schetke & Haase 2008, p. 496)

It is important to acknowledge that in the cases of Leipzig or Dresden, both cities in Eastern Germany, they benefited from financial investment that originated in Western Germany after reunification of the country. Would this beneficial strategy be possible without the availability of private finance? Given the lack of a private sector willing to invest and/or of a strong financial and political public sector, most of the time, this is not possible to achieve. In some cases, as in Youngstown, Ohio (USA), the city has simply adopted a downsize infrastructure approach. They are downsizing the city to suit current needs, investing in it, qualitatively, and then some growth might happen again (Schatz, 2010).

In summary, there have been three complementary phases of action – responses - or approaches to urban depopulation in various contexts: (1) simple abandonment, (2) selective or massive demolition with no further action, and (3) demolition followed by urban rehabilitation, with possible reinforcement of public spaces and/or green/natural spaces [8] (Figure 6). It is this last option that might present more opportunities for a better urban quality of life in periods of urban decline, and that is of special interest to professionals dealing with the shape of the city, such as landscape architects. However, there is not much research about the way in which a city can better contract to respond not only to ecologic demands but also to social needs (Chapter 3).

2.4.1 An Overview of the European Context

Most literature on depopulating cities is focused on the Rust Belt cities of the USA, and the former industrial centres of Great Britain (Liverpool, Manchester, Glasgow), and East Germany (Dresden, Leipzig). However, as seen above, there are other parts of the world also going through depopulation, namely, southern European cities, that have been affected by economic turmoil

[8] Total rehabilitation of urban areas can be an aim, but in periods of economic downturn, that seems too complex to achieve.'

since 2011. For these reasons, it seems especially interesting to broaden the discussion about the impacts of urban population shrinkage to cities in this part of the world. Are they really shrinking? In order to better understand this question, it is relevant to have a closer look at the European urban demographic situation.

According to the data of the Urban Audit Project, supported by the European Commission, 90 out of 242 European cities surveyed had negative population change rates between 1999 and 2004. Of those, two thirds are concentrated only in 5 countries: 16 in Italy 14 in Romania; 13 in Poland; 12 in Germany and 5 in Portugal.

By analysing the map (Figures 6 and 7) produced by the *Second State of European Cities Report* (Augurzky et al., 2010) and based on data from the Urban Audit Project of the European Commission, we can understand that cities with the sharpest population losses are concentrated on the periphery of the economic hub/London-Milan axis[9]. This fact reinforces the importance of economic vitality and the proximity to economic centres, in the maintenance of a growing population and that the problem is not concentrated only in former strong industrial centres or ex-soviet union countries. There is also the effect of periphery in countries like Italy, Greece, Portugal and the UK[10]. If we look specifically at the city core shrinkage (Figures 8), the situation changes slightly, with more peripheral cities being more affected by urban core abandonment. The areas with stronger city-centre declines are situated in northern UK and Ireland, Portugal, Italy, and again Eastern European countries, but more strongly in the ones closer to the boarder with Russia.

An analysis of the European urban demographic trends by Kabisch and Haase (2012), also based on the Urban Audit data, clustered 287 cities according to their demographic developments. Kabisch and Haase found that 32,74% of European cities were in continuous or moderate decline between 1991 and 2008. The authors' analysis also demonstrates that urban demographic trends do not follow national ones, i.e., nationally, there are significant differences between cities, with the UK being a good example of this trend.

[9] Except for the case of Turkey, which is part of a different economic network.

[10] Interestingly almost inexistent in Spain.

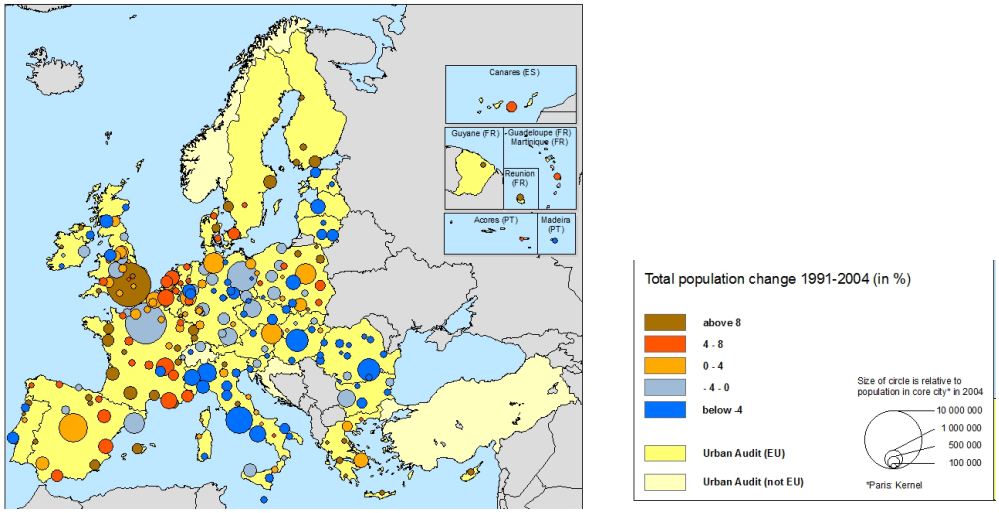

Figure 6. Total Population Change (in %) 1991-2004 In: Augurzky, B., Schmidt, C.M. & Schmitz, H., 2010. Second State of European Cities Report, Brussels., p.64. illus.

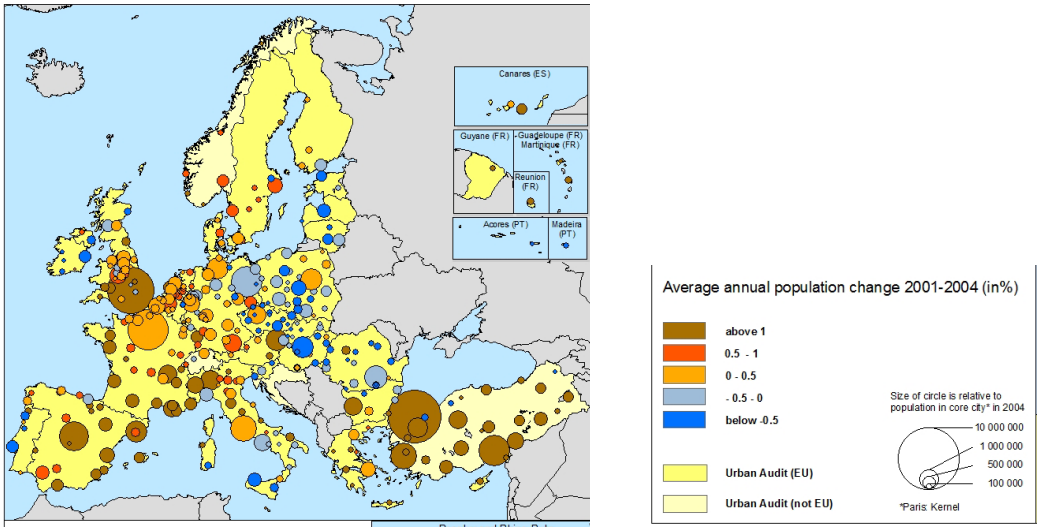

Figure 7. Average Annual Population Change in Core Cities (in %) 2001-2004 In: Augurzky, B., Schmidt, C.M. & Schmitz, H., 2010. Second State of European Cities Report, Brussels., p.56. illus.

3. 'Expanding' Landscapes

As a consequence of the shrinking cities' phenomenon, researchers and practitioners are increasingly exploring the idea of an expanding landscape or the expansionist nature inside the city (Figure 8). This means that there is a crescent interest in the expansion of the built city to its inner vacant spaces, that is, spaces that are not currently occupied by some built structures or formal or pre-determined use.

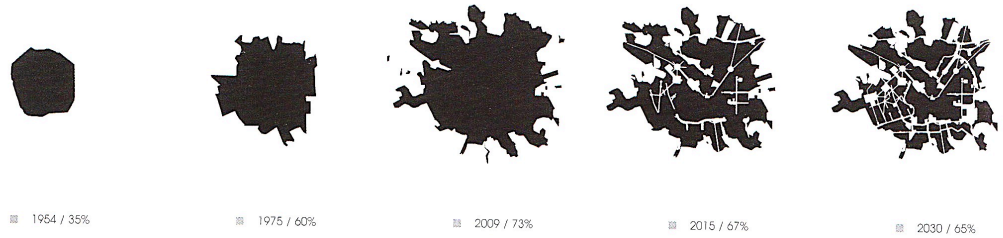

Figure 8. Milan Development Plan 2010/2011 by Metrograma In Metrograma (2010). "Milan: The Dense City". The Plan: Urban Development 47: 39-93.p. 79 Illust.

The idea that, in the future, there might be an increase in the area of these informal spaces within the perimeters of a city, i.e, an increase in spaces with no pre-determined functions and no built structures, might be viewed as an opportunity, however, in quite different ways. On the one hand, it can be regarded as an opportunity to increase the proximity to natural spaces and to benefit, potentially, a stronger green infrastructure for the city's ecosystems and its citizens. Proximity to green spaces has considerable advantages, not only to the water, air and material fluxes in the city (Spirn, 1984), but also to citizens' physical and mental health (Ward Thompson, 1998) (Chapter 4). For example, the presence of vacant land might allow opportunities for beneficial activities such as better storm water management (Albro & Burkholder, 2013), the existence of banks of seeds (Lockman, 2013), or biodiversity reserves (Langer, 2012).

However, on the other hand, it can also be regarded as an opportunity to restrain urban sprawl by using vacant land to increase the city's density, reducing energy consumption and its carbon footprint (see below). Besides energy consumption, urban sprawl has other negative impacts such as the loss of highly productive agricultural land, fragmentation of ecosystems, a rise

in car dependency, with consequences on commuting time and distances, air pollution, and traffic congestion, a decrease in the accessibility of green spaces and the lack of walkable urban spaces, with a consequent decrease in healthy lifestyles, and finally, the decay of inner-city areas causes social segregation and greater differences between neighbourhoods and their quality of life (Nilsson et al., 2013). However, in order to control urban sprawl there is the need for strong legislation and strong political will.

The Urban Development Plan for Milan City, produced by the *Metrograma* office in 2010/2011 for the Milan Council, proposed this approach. Milan has stagnated, demographically, since 1995 (Brauch, 2003) and the urban voids were expected to increase (Figure 8). However, building demand is still quite significant, generally associated with modernisation of the city's fabric. Metrograma's plan indicates industrial deactivated plans, railway yards, dumps or empty military stations as the correct spaces for urban growth. Interestingly, some authors also advocate that when the density of population concentration is very high, policies of "land sparing" seem to be especially beneficial for wildlife conservation (Soga et al., 2014), meaning that ecologically, the concentration of high densities of population might be a beneficial approach.

With this second approach – urban densification –, the traditional dense city is an important asset to invest in. However, the inner traditional cities are being affected by depopulation problems in Europe, namely in peripheral cities (Figure 7 and 8). The question then is – how not to loose these assets by regaining inhabitants?

Patrick Geddes, biologist, planner, anthropologist and botanist, at the end of the 19th and beginning of the 20th century, was confronted with a similar problem in the medieval core of Edinburgh, Scotland. With the construction of the New Town in the northern terrains of the city, between 1765 and 1850, all the inhabitants that could afford a house in this new area moved there, leaving the old medieval town abandoned and socially segregated. Patrick Geddes adopted a strategy that he called *conservative demolition,* one that refused both massive demolition and non-interventionist recovery. The main goal was to provide the *Old Town* with better living conditions without losing the character of the space. Some selected buildings were destroyed, opening air and light entries for the remaining buildings, and others were rehabilitated. Still, today, the Old Town is considerably influenced by the work of this eclectic personality, however, what is most outstanding, is that the medieval city is still perceived by visitors as an *untouched* place (Leonard, 1992).

The traditional, dense, European city of the post-Roman Empire has several advantages, namely, their smaller carbon footprint and energy consumption. These effects are related to a lower need for fuel consumption (Karathodorou et al., 2010) in denser cities and the per capita higher efficiency use of infrastructural necessities, like water, sewage, or electricity (heating, for example). With almost the same structural network of infrastructures dense cities can serve more

people. Another related advantage is its fairness in terms of mobility. In dispersed cities, especially in those with weaker public transport systems, the poorer population's mobility is not as good as wealthier citizens, and these residents become more isolated and less able to meet all their needs, like gaining access to jobs or health assistance, so they become less supported (Marcotullio & Solecki, 2013). Moreover, living in dense urban settlements seems to induce stronger walking habits, particularly in the more elderly population (Rodríguez, et al., 2009), improving the physical health of citizens.

But dense cities, within depopulation contexts, have still more important advantages, namely, their resilience to shrinkage. Brent Ryan, an associate professor at the Massachusetts Institute of Technology (MIT), has developed a deep analysis of urban shrinkage in the United States of America (2012). One of the important points of Ryan's work is his examination of how different housing typologies are more or less prone to dereliction under depopulation and therefore, susceptible to a greater or smaller destruction footprint. His comparative analysis of Philadelphia and Detroit, two of the most critical cases in the USA's urban shrinking panorama, demonstrates that row housing, which is the dominant housing typology in Philadelphia, is more highly resilient than the single pre-fabricated houses typical of Detroit: Philadelphia lost 20% (363,032 people) of its population between 1970 and 1990, and Detroit lost 32% (483,508 people) within the same period. However, whereas Detroit lost, in that same time, 22% of its housing units, Philadelphia had a residual loss in its housing units (Ryan, 2012). For Ryan, this stems from the fact that the maintenance of single-family houses is not only more demanding, since it has more areas exposed to weathering, but also, these houses are totally dependent on only one family. Multiple-family buildings, or even row houses, as seen before, are less prone to abandonment, since the necessary maintenance efforts are smaller, and many share the costs.

Denser European cities, like Genoa and Lisbon, the two case studies in this research project, seem in fact to be quite resilient to abandonment. The signs of abandonment are evident, but do not seem to have had such deep consequences as in low density cities, like Detroit (see point 7.2).

For example, Genoa lost approximately one third of its population, and Lisbon city council lost 40% in the core area. However, the housing unit losses are only 10% (data from *genova meno uno per cento* project), and 12,4% according to the Portuguese national census of 2011 (Anon 2012a), respectively. The political adherence to a demolition strategy in North America cities didn't seem to bring any advantages to the most critical neighbourhoods according with Brent Ryan's (2011) analysis.

For authors like Audirac, et al (2011), America's suburbs, where single-family houses are dominant - will become the future slums since the increasing number of families without children will tend to concentrate in city centres once more. There are even scholars today who are defending the need for a retrofitting of the suburbs, i.e., to engage in their densification (Dunham-Jones 2005). In the case of shrinking cities, this would not only mean a very large

financial investment, non-existent in most of the depopulating cities, but also, the construction of already unnecessary dwellings (unless this was a strategy for smaller units within the city). This would probably mean a strategic choice regarding the neighbourhoods in which to invest and the ones in which to disinvest. For Ryan (2011) there are five basic principles suitable for dealing with declining urban scenarios inspired in what the author addresses as social urbanism. Social Urbanism is described by Brent Ryan as a strategy of urban and social investment in very deprived and very populated urban areas, through surgical interventions of high quality and social purposes (schools, and libraries, for example). The example given by Brent Ryan is that of Medellin in the 1990 and 2000 with the token "the most beautiful buildings for the humblest people". Also the perspectives of some practitioners such as Jean Phillipe Vassal, awarded French architect, postulate that the way forward when dealing with urban renewal is always that of addition and not subtraction. In his book *Plus* (2007), he presents the example of *Petit Marroc* in *Sainte-Nazaire*, France. Instead of demolishing buildings that have been going through a degradation process, the architects Anne Lacaton & Jean-Phillipe Vassal, decided to enhance the qualities and capacities that the space already had, e.g., the consolidated green spaces, the solid and well preserved construction, a well connected transports network, the good views and people's attachment to the place, although it has a very bad reputation. The project maintains the building but triples its density by adding a new skin to the building, more windows and more balconies (Druot, F., Lacaton. A., Vassal, J., 2007).

There is evidence in Europe, that the trend has been precisely the opposite until recent years (Kasanko et al., 2006), i.e., there has been an increase in lower urban densities. This has happened especially in northern European cities. South European cities seem to have high densities in their inner cities as well as on the outskirts, even if the dominant urban typologies of these poles are distinct, i.e, multistorey tenements within perimeter blocks in the centre and high-rise isolated buildings on the periphery. However, there are also some signs of an urban reconcentration process in some inner cities, mostly composed of immigrant populations and younger citizens living alone, in shared houses, or with young children, and who prefer houses of smaller dimensions closer to the amenities of the city centre (Haase et al., 2008). This is a consequence of the *Second Demographic Transition*, defined for the first time by Lesthaeghe and Van de Kaa in 1986 and it is characterised by falling birthrates, an ageing population and smaller household sizes (Sophie, 2011). The phenomenon is explained as being based on four transitions: 1) from marriage to cohabitation; 2) from child-oriented families to parent-oriented families; 3) from "preventive contraception" to "self-fulfilling conception"; and 4) from traditional households to pluralistic households and families (Bouzarovski et al., 2010).

These potential future trends – inner-city densification and urban sprawl restriction – might mean fewer green spaces of wider dimensions or perhaps, the expansion of a "second wilderness" within and outside the urban realm. This is the balance also presented by Terry Schwarz (2008),

from the Urban Design Center of Kent State University, in Chapter Five of *Cities Growing Smaller*. In his view, shrinking cities are faced with two theoretical models, the consolidation model and the dispersion model. It is the balance between these two models that will forge the future of our shrinking cities. The first model addresses energy efficiency and the protection of social structures, whereas the second will enhance the potential of green spaces as actors of a better ecological balance and better quality of life for city dwellers. Armborst (2008), presents the case of Detroit where the accumulation of empty lots has triggered the occupation of empty lots by adjacent neighbours in a "gradual, unplanned, uncoordinated, and bottom-up" process (Armborst 2008, p. 49), which Armborst named "blotting" or "new suburbanism". However, according to Ganning & Tighe (2014), this approach would not be enough to address the majority of the vacant lots in most depopulating cities in North America. In the example of Saint Louis (USA), this kind of approach would only recover 10% of the vacant lots.

As mentioned before, not much information has been published regarding changes in the urban fabrics of southern European cities due to depopulation. Undoubtedly, these cities present signs of dereliction, vacancy and higher percentages of household vacancies. Therefore, a theoretical discussion regarding the expansion of green infrastructures, or demolition, as a way forward, is more difficult in such contexts. Here a better contextualization of these cases is in itself a contribution to the overall discussion regarding urban shrinkage.

Moreover, within this broader discussion, research must be undertaken to discover which outdoor typologies address the needs of communities going through urban depopulation, specifically, if outdoor spaces, or other urban features, attract more residents and prevent greater community fragmentation by depopulation processes.

There are no easy solutions for shrinking cities, but it is certainly important to both compare cities and address them individually in order to enrich our comprehension of these matters and the work presented in this thesis hopes to make a contribution to that discussion.

4. Outdoor Spaces and Population Fluxes

4.1 Outdoor Spaces and Population Fluxes in Previous Times

Population fluctuation is seldom described as related to dominant typologies of outdoor spaces - spaces open to the sky such as gardens, squares, kitchen gardens, parks, courtyards, patios, etc. - in different cultures or historical periods. However, it is generally acknowledged that the art of garden construction is associated with times of economic growth, prosperity and innovation, normally, periods of population growth (Harvey, 1981). A comparative reading of population gain and decline, and the dominant open/green spaces' typologies across time can bring some clues about this relationship. This fourth chapter focus on two different time frames: medieval Europe, from the 5th to the 15th century, and the park movement of the 19th and 20th centuries, to discuss how demographic factors can play a role in the construction and uses of landscape.

In the apogee of the Roman Empire in the 1st century AD, the general Pompey the Great, offered the crowded capital city of Rome a grove for its citizens' use, surrounded by a colonnade entitled the *Porticus Pompeiana* (Gleason, 1994). This is in fact considered to be the first public urban park of the Roman world, and it coincides with the peak of population concentration in the city of Rome (Twine et al., 1992). According to Gleason (1994), many other such places were built afterwards. The importance of public spaces in the cities of Ancient Greece and Rome is widely acknowledged, with the construction of urban features like the *Agora*, or the *Forum* (Kostof, 1991; Laurence, et al., 2011). However, although not nature-like in its features, as in a contemporary sense, the *Porticus Pompeiana* fulfilled a very different role when compared with the other public spaces of the ancient city. It was not the place for political and social debate, or of religious acts, but it was a public garden for leisure purposes with a design that resembles the private gardens of the Roman elite. In a poem from *Propertius,* the description of the *Porticus Pompeiana* encompasses themes like the search for beloved women, leisure time, the comfort of

shade and babbling waters (Gleason, 1994). Curiously, these are the same themes that return six centuries later, at the beginning of the recovery after the collapse of the Roman Empire.

It is very difficult to know exactly how the population changed in the transition from the fall of the empire into the Dark Ages. The quantification of population is always a controversial discussion, but especially when, as in this case, the data are very sparse and often incomplete. Nevertheless, some scholars have tried to achieve a rough estimate, such as the German classical historian, Karl Beloch (1854-1929), the British Roman historian, Edward Gibbon (1737-94) and Ernst Stein, Austrian historian specialist in Byzantine History (1891-1945). Russel (1958), in his paper, *Late Ancient and Medieval Population*, presents the accounts of these different authors, namely, the ones from Stein that estimates there were 70 million people living in the whole Roman Empire in the 1st century, and 50 million in the fourth century, meaning an approximate 30% reduction in a timeframe of three centuries. According to Russel (1958), this declining trend probably continued steadily until the 7th century, and was then followed by a very slow recovery until the 10th century. During this early medieval period, there is very little evidence regarding the nature of existing gardens or parks. In fact, there seems to be only three pieces of evidence: some legislation from the Charlemagne Empire; one plan representing an ideal monastery, (St. Gall, Switzerland); and some written poems reflecting on gardens. Interestingly, all three are posterior to the 8th century, already a period of slight economic recovery (Harvey 1981). From these pieces of evidence we can conclude that enclosed orchards and pieces of land dedicated to fruit production and horticulture were protected by law, at least in Charlemagne's Empire (768-800 AD)[11]; that the garden spaces within the walls of a monastery had precise functions – kitchen garden, infirmary garden and cemetery – and were not exclusively dedicated to pleasure in the monastic life of the first quarter of the 9th century; but also, that these utilitarian functions were compatible with those of pleasure, and that natural beauty was admired and exalted, as is proved by the *Hortulu* poem of Walafrid Strabo (840 AD), a monk living in Charlemagne's France (Harvey, 1981). Besides Walafrid's poem, the other two pieces of evidence presented by Harvey (1981) are definitely utilitarian, showing that agricultural production was a dominant feature. After centuries of living under very deprived conditions, where almost everything, including food, was lacking, and where the only valid social institution was the family (Lopez, 1984), it is comprehensible that this was the status quo at the time. The end of the Roman Empire dictated a population dispersal of the once city-concentrated population through the rural landscape, under

[11] Charlemagne's Empire included the territories of today's France, Belgium, Holland, Switzerland, Western Germany and Austria, half of Italy and the north of Spain (Harvey, 1981).

the leadership of agricultural landowners; smaller scale fortified towns[12]; bishops; or newly established monasteries.

Both feudal territories, towns and monasteries had to function as self-sufficient organisms, fundamentally based on agricultural production, with a narrower range of an exchange of goods compared to imperial times (Hunt & Murray 1999). Cities had independent coin production, agricultural lands, and laws/justice officers, positions often occupied by bishops and not by civil servants, as in the days of Empire (Lopez, 1994). The confrontations between the emergent powers - feudal lords, cities, and church - were very common in early medieval times (Lopez, 1984). In the words of Lopez:

> "a violência é congénita e está enraizada no estado urbano". (Lopez, 1984, p.41)[13]

One of the features of the city's shape in the Middle Ages in Europe, therefore, is its strongly fortified character, with its internal neighbourhoods organized according to sentinel divisions. This essential feature of urban settlements, towns, episcopal palaces, monasteries and rural proprieties are also present in some later depictions of gardens. It is in fact almost a constant presence.

From the year 1000 until 1348, finally, the population of Western Europe went through a prosperous period of rapid population growth, which seems to have coincided with a warmer climatic period. It is referred to as the Medieval Warm Epoch (from 1000/1150 to 1200/1300) (Harvey, 1981; Lamb, 1965), and is considered by historians as the beginning of the late medieval time. This is a period of agricultural progress (Lopez, 1984) and great clearances of woods (Brandon, 1969), more food availability, and therefore, a more prosperous commercial environment (Hunt & Murray, 1999; Lopez, 1984) . It is the time of the establishment of the first universities as educational centres independent of the church (Anon, 1972b); it is the time of territorial expansion to the East in the crusades' campaigns, from 1196 to 1270 (Anon, 1972a); and it is also the time of cities progressively functioning politically as self-organized entities headed by free men, mainly in Italy – the "commune" cities. This was the case of Venice, Genoa, Siena and Bologna, for example[14]. As these cities rose in power, there is a progressive occupation of the countryside, with agricultural slaves becoming freemen, payers of taxes to their city, permitting ever more prosperous cities. This also meant that the frontier lines of the city-state territories were closer and therefore, more conflicts seem to have happened (Lopez, 1984).

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[12] Also named *bourgs*, *urbs*, or *oppidum*. These fortified human agglomerations had agricultural lands annexed to them. This complex of fortified town and correspondent rural land was called city in English, but in other languages *civitas* (Latin), *cité* (Fr), *ciudad* (Es), *cittá* (It), or *cidade* (Pt).

[13] Trans. "the violence is congenital and it is rooted in the urban state"

[14] In the 10th century, for the first time in history, a treaty is signed between a "commune" and a king, between the anonymous Genoa and Frederick Barbarossa (or Frederick I, Holy Roman Empero) (Lopez, 1984).

Interestingly, this is also the time when references to gardens become more frequent and of a different nature. In one literary piece of this period, "The Art of Courtly Love" by Andreas Capellanus (1170-1174), the garden is described as follows (Anon 2012d):

> "The place was closed in on all sides"
> "surrounded on all sides"
> "walled off" (in Anon, 2012d p.128)

In fact, the enclosed garden is built inwardly, thus is protected, and aims to contrast with the open field – the working factory of the time. From the descriptions of the Song of Solomon, it is possible to understand that the field is the place of restless work and burning sun, and that the garden represents rest and protection:

> "utility takes precedence in the fields and that the garden must fulfil the opposite function. Unlike the field where the bride skin becomes dark, in the garden she can rest in the shade of the tree, which is the equivalent to being blessed" (Anon, 2012d, p.128)

The garden is detached from its functional purposes, and the themes of shade, rest/leisure, the beloved woman, and the water spring return. In other two texts from the 13th century, *Roman de Rose* by Guillaume de Lorris and Jean de Meun and *Gottfried von Strassburg* by Tristan, the descriptions of gardens encompass concepts such as, the delight, innocence and protection from the harsh outside world, shade, wellbeing and love (Anon, 2012d).

Later, in the prosperous Renaissance period, triggered by the opening of new commercial lines with America and India, once more, and more strongly, the theme of gardens was reintroduced, with them becoming greater and more formally and classically designed (Jellicoe & Jellicoe 1975; Pizzoni 1999), often outside the walled city - country *villas* (Loxton, 1996; Gorse, 2012), with a regain of agricultural lands from woodland after 1400 (Yeloff & Van Geel, 2007). Gardens were created on a far greater scale, a clear sign of power and status, as a theatre for political statements and as vehicles for easing better agreements (Looper, 2012). In the Enlightenment era of the 17th and 18th century, gardens achieve their splendour as political instruments, but simultaneously, they also become places for medical, physical and chemical experimentations (Hickman, 2014), as well as optical (Baridon, 1998), hydrological (Hofer, 2011; Baridon, 1998), and botanical ones (these last, particularly so in newly independent Holland) (Pizzoni, 1999).

From the 19th century the demographic change presents unseen growth rates, more intensely in newly industrialised regions like the United Kingdom and North America. It is this intense population growth that pushes forward the development of the public park typology, and to its climax, by pressing for an urgent need for "breathing" and "speechless" spaces inside the city (Jackson, 2003). Tuan (1998), in his book, *Escapism,* gives the example of how the agricultural achievements that permitted vast food availability, associated with the urban in-migrations typical of the industrial revolution, changed the need to "escape from nature" to the need to "escape to

nature". With greater urban crowding, there is an increasing fascination, in the Enlightenment and Romantic periods, with the theme of "untamed" nature and the natural sublime, reinforced by exploration of natural wonders in the so-called New World. The construction of nature-like spaces begins, not surprisingly, in industrial England with the *Picturesque Movement* in private estates such as Blenheim or Stowe, in Oxfordshire. Designers like Paxton, Capability Brown or Repton led the process and revolutionized the way in which gardens were planned and maintained. The regular forms of the Italian and French gardens were abandoned and new organic designs were put to the test; designs that would benefit their users with the sense, or better, the fiction, of nature uncontrolled by man.

These nature-like parks are, however, reserved to the few elite landowners that could afford to keep such vast pieces of land tailored for their own pleasure. It is only in the aftermath of a greater acknowledgment of the public health risks of overcrowding in cities, and recurrent city epidemics, that these typologies are co-opted into the public realm, with cities like London and Stockholm opening their royal grounds to the public at the beginning, and in the mid-19th century (Clark, 2006). Other such examples are present in Mexico City's Chapultepec Park and Berlin's Tiergarten, co-options of royal or elite estates (Stanley, et al., 2012). It is in Liverpool that, for the first time, land is acquired by a public entity with the sole purpose of constructing a park for the use of all citizens. Using the picturesque aesthetic of the day, but with this new social agenda, Birkenhead Park was opened in 1843 (Ward Thompson, 2011): a pastoral park without a grand house, with the sole aim of helping citizens' health and wellbeing (Ward Thompson, 1998). It is not a coincidence that this paradigmatic shift – the shift from a country pastoral aesthetic, of a private nature, to a public urban one – happened in the city of Liverpool. The city's death rates, recorded in 1842 by Edwin Chadwick, show that the higher classes living in Liverpool had higher death rates than the working classes in less industrialized districts like Rutland or Bath (Macintyre & Ellaway, 1993). It is in the USA that the typologies of public parks reached their splendorous zenith, with the cases of Central Park, in New York City, Prospect Park, in Brooklyn, or the Emerald Park in Boston and Brookline, designed by Frederick Olmstead (1822-1903) and Calvert Vaux (1824-1895).

Probably without such a human concentration in urban contexts the existence of public parks wouldn't be so predominant in this time period. Therefore, there seems to exist some ground to argue for a correlation between population fluxes and more predominant typologies of open/green/public spaces. Enclosure is associated with times of fear, insecurity, and population contraction; while public green spaces, naturalized, and on a wider scale, are associated with periods of extreme urban population density. Just as the *locus amoenus* is designed to escape the working field, the pastoral park is designed to escape the working factory. One is exalted for providing shade, the other for providing sunlight. What was for one society in time the product of restless work was, for the other, the source of recovery. In fact, different typologies of green spaces

do have determined and different roles, and they are enhanced, or retracted, according to particular socio-economic and political conditions: from the utilitarian gardens of the early Middle Ages, to the controlled and enclosed *locus amoenus* for the senses' delight, to the great designed private estates of the Renaissance and Enlightenment, or to the big, open public parks of contemporary cities.

4.2 Outdoor Spaces and Population Needs Today

Today, an extended body of research continues to support the hypothesis that green spaces, specifically within urban realms, have beneficial inputs on urban citizens' lives (Hartig et al., 2014; Vries, 2010; Ward Thompson & Aspinall, 2011), providing space for restoration (Andrade & Devlin, 2015; Ulrich, et al. 1991; Roe & Aspinall, 2011; Kaplan, 1995), for meditation and engagement (Roe, Aspinall, et al., 2013), for stress relief (Roe et al., 2013; Ward Thompson et al., 2012; Hansmann et al., 2007), and a theatre for positive social interaction (Gobster, 1998; Kamierczak, 2013; Peters et al., 2010; Seeland et al., 2009; Travlou, 2007). Green environments also provide spaces for physical exercise (Jones et al., 2009; Coombes et al., 2010; Ward Thompson & Aspinall, 2011), which is *per se* an important asset in an increasingly sedentary society, however, interestingly, the impacts of exercising in a natural environments, when compared with other environments, seem to minimise more strongly the risk of mental health (Mitchell, 2012).

Moreover, there is evidence that the beneficial impact of green spaces on people's health is especially relevant for deprived communities for whom, both mortality rates and stress levels are higher (Mitchell & Popham, 2008), and accessibility to good quality green spaces is lower (Ward Thompson et al., 2010). Therefore, for these communities, green spaces of good quality and which are easily accessible are particularly important. Proximity has been proven to be one of the most important aspects to increase the use of green spaces (Ward Thompson et al., 2005), however, other ones such as cleanliness and maintenance (Kamierczak, 2013), and people's orientation to outdoor activities (Lin, et al., 2014) are also crucial. Interestingly, some studies indicate that some deprived communities with easy access to green spaces do not perceive those spaces as accessible as they actually are, and do not tend to use them as often as citizens living in more affluent areas (Jones et al., 2009). This might be linked to the qualitative levels of those spaces, and with people's perceptions of their levels of safety.

These beneficial consequences of green spaces and contact with natural environments for citizens' mental and physical wellbeing (lower psychosocial problems, less obesity and fewer risks of diabetes) and community cohesion, confirm the empirical knowledge of our ancestors, who associated green spaces with the positive impact they had on people's general wellbeing (Ward

Thompson, 2011). However, recent studies have showed that the impact of green spaces might have more impact in mental health than in physical health (Triguero-Mas et al., 2015).

According to Herzog, Maguire, & Nebel (2003), there are mainly four elements that endow a particular space with a higher restorative capacity: extent, fascination, "being away", and compatibility. Whereas the first three are related to there being enough mildly attractive elements on offer, different from those of the stimulus of daily life, to endow a sense of mental rest and effortless attention, the fourth one, compatibility, is related to the affordances of the space:

> "A setting is compatible if there is a good fit between an individual's purposes or inclinations and the kinds of activities supported, encouraged, or demanded by the setting." (Herzog, et al, 2003, p. 160)

The concept of affordance was developed by the psychologist James Gibson in 1977, and it relates to the capacity of an object, or a space/environment, to provide, or not, determined actions, just as quoted above. A space with higher affordances naturally permits a greater variety of actions, for a wider population, and therefore, becomes a good investment for public authorities in search of a planning instrument that offers citizens different possibilities to undertake necessary actions, such as physical exercise, mental restoration or meditation, and also, social encounters.

For example, Layne (2009), in his doctoral thesis (University of North Carolina), has explored the features that are commonly preferred by users of public spaces of different ages. The results show a great commonality in the preferences of young adolescents and young adults with regard to open/public spaces, meaning that these are the most adequate spaces for the exploration of intergenerational interaction. Some of the qualities of the spaces that are most preferred are: safety, good maintenance, enclosure, quietness, a sense of privacy, and of it not being crowded. Simultaneously, participants also reported the need for the spaces to be interesting, open to pleasant views, lively and used well by people. Besides commonalities, there were some differences between the adolescents and young adults, namely, the preference of the former for smaller, and more enclosed open spaces (courtyards and gardens), with a more cultural/built character, whereas, adolescents reported the typologies of "landscape parks" as affording a greater sense of safety and activity, and preferred more naturalised spaces. Also the study of (Hadavi et al., 2015), exploring preferences in the qualities of nearby green spaces for a community in Chicago (Logan Square Neighbourhood) by exposing participants to a series of images of different typologies of green spaces, reveals a significant tendency to prefer enclosed and smaller typologies, with opportunities to socialise and grow plants, and with both human and natural elements simultaneously visible. Moreover, the way in which the participants of the cited study divided the images was more related with the possible uses in each scene and not with the imagery or design similarities. The most preferred image in the study was also one of the most diverse in terms of potential uses, i.e., in terms of affordances. Also, several other studies focusing

on affordances of open/green spaces have highlighted the wide spectrum of affordances that "natural" environments do have, when compared with other typologies of open recreational spaces, especially for younger children (Bell et al., 2003; Moore, 1986; Striniste & Moore, 1989; Debord et al., 2002).

Empirically, we can understand that the character of most popular open spaces in smaller urban settlements, where there is easy access to private gardens, woodlands or rural spaces, is often the market type square, where people meet, exchange information, sell and buy, or read newspapers. This is the typical panorama in small Southern European cities, for example, especially if maintaining a traditional denser urban fabric where the square, or the main streets, are the place for multiple functions and social encounters (Stanley, et al., 2012). In the low dense suburbia typical of countries like the USA, where the street and square do not have the same role, the mall, so popular between the 1960s and 1990s, seems to have replaced these traditional urban features (Southworth, 2005)[15]. Conversely, metropolises have different matters to consider when it comes to the use of outdoor spaces, i.e., these spaces are seldom within walking distance and very often, are small and neglected, and frequently, buildings have progressively occupied private plots within cities in the last 200 years (Marat-Mendes, et al., 2003). Under these circumstances, the naturalised, wide public park seems to offer more affordances for citizens. Grahn & Stigsdotter's (2010) research indicates that users of green spaces with higher stress levels do prefer spaces where the sensation of refuge is present and the features of the space are closer to a "primordial" nature. However, it is important to note that higher levels of stress are found concentrated in bigger cities (Abbot, 2012; Lederbogen, et al., 2011). Also Haq (2011) seems to defend that the presence of green spaces of wider dimensions is more relevant in denser cities, like the case of Hong Kong. Although many different authors (Mitchell, et al., 2011) support the thesis that the beneficial effects of green spaces are potentially higher in larger-scale urban parks, and even that people generally prefer these spaces, others think that the benefits to be drawn from these spaces are dependent on the context. On this theme, Jane Jacobs, affirms that parks:

> "can and do add great attraction to neighbourhoods that people find attractive for a great variety of other uses. They further depress neighbourhoods that people find unattractive for a wide variety of other uses, for they exaggerate the dullness, the emptiness." (Jacobs 1961b, p.89).

The empirical study of Jane Jacobs, showed that green parks can act as "green walls" separating neighbourhoods of different social, economic and ethnic backgrounds, but Gobster (1998), studying a park in a different context, found them working as "green magnets" instead, i.e., working as places of encounter, joining together, in one place, those different social groups that tend to live spatially apart.

[15] Although this typology of buildings and public commercial spaces are facing a severe decline, specially in the USA (Semuels, 2015; Jordan, 2012; Stabiner, 2011).

Also, different phases in an urban park's history can affect its present situation and use, for example, in the USA, some public parks that experienced security problems started to be managed by private associations, with the aim of keeping a good level of maintenance. If this can be regarded as a healthy private stewardship initiative, in the interests of the community, it can also be regarded as semi-privatisation of a public good. This is the view of Nevárez, (2007), for example, who presents the private management, and guidelines of use imposed on users of Central Park in New York, by the "Central Park Conservancy", as a somewhat abusive re-privatisation of the public park by the elites that contribute to its maintenance, with the associated risk of losing the democratic character intended in the original designs of public parks. Just as disruptive social groups impose a restricted use of public goods, such as parks, Nevárez (2007) argues that private patronage might be equally intrusive.

4.3 Outdoor Spaces and Depopulation Today

More relevant to this research is however the role that different open space typologies in contexts where the urban population is shrinking rapidly can have. Perhaps, under these circumstances, the need for (1) vast pastoral urban parks is not felt so dramatically; (2) there might be a resurgence in urban agriculture; (3) smaller enclosed urban open spaces (green, or not) might become more attractive in some depopulating cities; and (4) the creation/reappearance of woodland might occur more frequently.

Depopulation is normally associated with social disruption and segregation. The presence of open/green space typologies in depopulating contexts might contribute to greater feelings of fear than of pleasure since their maintenance costs may be prohibitive for societies under extreme financial constraints, risking their further dereliction or re-privatisation.

Moreover, as mentioned earlier, the processes of depopulation, deindustrialisation and/or suburbanization, characteristic of so many contemporary cities, keep "producing" wasteland - unclaimed, undesired or unwanted land – abandoned housing and industrial areas, closed railway stations, territories to be developed or demolition sites. Most of the time, these spaces present a major challenge as elements of urban disruption, most of the time, they are multiple, small in scale and widespread (Zakirova, 2010).

Due to the fact that:

> Waste lands do not give us the tranquillity of nature, nor the re-assurance of designed promenades, (Armstrong, 2006, p. 119)

they, too, pose a question of purpose and impact on urban life.

As mentioned in the previous point, proximity is one of the most important attributes for the use of a green space. But the example of Detroit, shows that potential proximity to open green

spaces hasn't brought the potential benefits for most citizens. However, the widespread presence of wasteland sometimes encourages temporary and spontaneous occupation of spaces, sometimes known as urban guerrilla activity that can bring advantageous use of abandoned parcels of land. Temporary and spontaneous use of urban spaces has been an increasing field of interest for city scholars (Madanipour, 2013; Németh & Langhorst, 2014; Kuhoutek & Kamleithner, 2003; Oswalt et al., 2013).

One of the typologies of occupation described in the literature is the resurgent interest and presence of parcels of urban agricultural land in the city. According to Barthel & Isendahl (2013), the presence of urban agriculture has been a feature of urban resilience throughout time, as, for example, in Mayan cities that resisted decline, and in Constantinople when compared with Rome, for example. Other cases, such as Kerala in India, where there still persists the 4000-year-old practice of land organization that involves maintaining a one-acre backyard garden for food production, or the remains of 1st century AD Pompeii that prove the existence of the kitchen garden with some fruit trees for the subsistence of families, give us evidence that urban food production has been a feature of human settlements (Stanley, et al, 2012) throughout history. So too, the example of Chinese cities up to the 1930s (Tuan, 2007).

Examples today range from the "Sisters of the Soil" in Detroit (White, 2011), a group of women that gather to produce food and thus help their families by providing them with healthy food unavailable elsewhere, and in so doing, are creating a safer and greener community; the "Horta do Monte", where old and new inhabitants of a core depopulating neighbourhood in Lisbon test permaculture principles; the occupation of an old military camp in Thessaloniki (Greece) to be used as an informal public park and agricultural field, show how these open, forsaken spaces are being reclaimed for food production (Evangelia 2013). In Boston City, a recent study by Boston Metro Ecological Research, coordinated by Robert Ryan, professor in Landscape Architecture at the UMass Amherst, has demonstrated that although the biodiversity in vacant lands and community gardens is generally the same, the use is much higher in community gardens (62%) compared with vacant lands (32%) (Ryan, 2012), showing that the presence of an ordered and productive use seems preferable in depopulating circumstances. Also, in Philadelphia, community gardens have been an important tool, not only for the occupation of vacant land, but also for the integration of immigrant minorities in cities like Philadelphia (Bartlett, 2005).

Frequently, wastelands are contaminated and their incorporation into city life becomes less straightforward than the examples cited above. Also, if the levels of housing destruction are very high, the rate of land occupation for agricultural uses is not enough to generate a feeling of habitation with regard to parcels of city land. Hence, sometimes, these "uncultivated" spaces of our times evolve, giving rise to the expansion of new urban woodland areas, like in the cases of Detroit, Dresden and Leipzig. An interesting example of how quickly urban woodlands can be

incorporated into urban lives is the Nature-Park *Sudgelände* in Berlin. The *Sudgelände* Park is situated in an old railway station abandoned after the Second World War. The space was fenced and for decades, the population forgot about it. This fact permitted an undisturbed evolution of vegetation and a spontaneous generation of fauna. When in the 1970s, after 30 years of abandonment, some experts evaluated the site, they found that it was one of the most ecologically diverse in the city of Berlin (Langer, 2012). Areas that are today, as before, simultaneously loved and feared, with some people feeling "ambivalent" about them, as described by Anna Jorgensen, (Jorgensen & Tylecote, 2007) are present today in cities like Leipzig, Dresden or Detroit. Some studies support the fact that, for example, some social groups feel particularly vulnerable in woodlands and therefore, avoid them, namely, women (Ward Thompson et al., 2005; Bell, 2005) or ethnic minorities (Bell, 2005). Anna Jorgensen has explored the perception of woodlands in different conditions and the results of her studies indicate that, on the one hand, people do value enclosure, even in woodlands, preferring dense trees when presented with manipulated images of different scenarios of woodlands (Jorgensen et al., 2002), but, on the other hand, a comparison between people living in neighbourhoods bordering woodlands and people living in other urban areas, has revealed a higher sense of insecurity in the first group (this is felt more intensely by women).

The literature concerned with the opportunity to reinforce the value of green spaces in shrinking cities seems based on examples where the aim is to create a structure of wider typologies of open spaces, especially in the German context. However, will these open public spaces fulfill the role of healthy refuges? And will they be compatible with residents' desires and inclinations in order to address the ever present need for human restoration? Or will this function be compensated by some other typological open spaces, that are smaller, enclosed, and productive?

However, there are several prominent examples in Europe, especially in the cities of Dresden and Leipzig, where a strategy of green infrastructure reinforcement, both on a wider scale and with smaller outdoor spaces, has improved the image of these cities, such that today they are again recovering their population numbers.

In order to better understand which inclinations take precedence over others in depopulation contexts, it is necessary to better understand, directly, the preferences of citizens living in the midst of population shrinkage.

5. The Social Consequences of Urban Depopulation

As was mentioned briefly, in point 2.4, urban depopulation has deep consequences on community stability, namely, by provoking social segregation and fragmentation, often accompanied by an increased sense of insecurity. This fact reinforces the hypothesis presented in the previous point: that residents' preferences regarding public/green spaces may become biased, even if slightly, towards smaller and more protected community spaces, like public squares or small community gardens, and less so to parks within these contexts.

Social segregation and higher crime rates are not problems exclusive to depopulating contexts. Overcrowding usually has the same outputs. However, overcrowding is often associated with a major attraction, namely, job availability. This was the case during the Industrial Revolution in Great Britain or during the migratory fluxes from Europe to North American cities in the 19th and 20th centuries. The greater living space for people in these places comes with a sense of relief and it is a sign of progress to a better quality of life for its citizens. In Western societies, this matched the modernist city ideals of proper and dignified houses for everyone (Jacobs, 1961a). Less busy spaces, therefore, might not necessarily be accompanied by an economic downturn. However, contemporary depopulation seldom reflects this trend, especially when it overtakes certain percentages of population losses, when an economic downturn period accompanies sharp depopulation processes.

The social impacts of depopulation are certainly crucial to a better understanding of future possible changes in urban features of shrinking urban contexts, and its future challenges. According to the literature on shrinking cities, the high rates of unemployment present in these contexts force a selective out-migration. As mentioned before, younger and better skilled residents, normally with higher educational levels and in the age range of having children, are the ones with better chances of leaving the afflicted area (Oswalt, 2008; Martinez-Fernandez et al., 2012; Schatz, 2010). This fact has a twofold consequence. On the one hand, naturally, it imposes an in-place social segregation, of older and less educated people, leading to a progressive homogenisation of the community, and on the other, it leaves the community dispersed. The

consequences of this dispersion are naturally linked with the nature of the existing urban fabric (Chapter 3) being more sharply felt in neighbourhoods where the dominant dwelling typologies are single-family houses. A more homogeneous society of older and less skilled residents leaves the community with fewer resources to counteract the declining process. Currently, there is a strong acknowledgment that the presence of a solid percentage of knowledge-based professionals in a community's, neighbourhood's, or city's workforce, is a crucial asset for a better off society as a whole:

> "Human creativity is the ultimate economic resource. The ability to come up with new ideas and better ways of doing things is ultimately what raises productivity and thus living standards."(Florida, 2002, p. xiii)

Due to this understanding, cities worldwide are now competing strongly to attract these segments of the population hoping, to prevent future stagnation:

> "Places that are open and tolerant have an edge in attracting different kinds of people and generating new ideas." (Florida, 2002, p. xix)

This is especially felt in depopulating cities, that, desperate to attract segments of better-educated people, try to push their cities forward by means of strategies ranging from revived waterfront areas, new opera houses, cultural centres, or even fun parks (Pallagst et al., 2013), or better retirement fiscal conditions (Nefs et al., 2013). In a thriving society, the existence of these typologies is a natural process. In depopulating ones, it is an upfront investment with no guarantees of return. In the words of Schatz:

> "the competition (…) is making shrinking cities more outward-focused and plans become more of a marketing tool than a way to improve the quality of life of residents who remain." (Schatz, 2010, p. 331).

Policy agendas in shrinking cities are targeted, therefore, at attracting the population segments that might have the creativity and innovation to change these cities' fate. However, are people the key influencing factor for a positive change in the environment, or is it the environment itself that shapes people's behaviours?

The maxim, 'People make places and places make people', perfectly encapsulates the main traditional poles of this debate that stand at the core of environmental studies, namely, environmental health studies, i.e., the study of the environmental impacts of places on people's wellbeing. These two poles have been coined as the contextual and compositional effects. A contextual effect refers to the impact a place has on people's wellbeing; whereas a compositional effect refers to people's endogenous characteristics that influence their health and wellbeing, and in the places/contexts they inhabit.

To better explain these two poles of influence, Macintyre and Ellaway (1993) give the following examples: if you have a neighbourhood with a high concentration of poor people, and

you know that poor people die earlier, then the mortality rate has a compositional origin. Another way of looking into high rates of mortality is, however, to acknowledge that places where poor people live normally have worse housing conditions, fewer transport facilities, or a greater presence of environmental hazards. The quality of a neighbourhood has, therefore, important impacts on people's health and wellbeing; but also, it is this population that simultaneously forges the place. There are several examples of social housing areas that have become very attractive areas to middle-class residents, such that, by investing in the area, they have made it resilient, desirable and financially very valuable, confirming the compositional effect[16] (Ryan, 2012); there are also many other examples of how poor people are often "placed" by a state's welfare systems in areas with rooted environmental problems, i.e., that do not facilitate residents' health (Braubach & Fairburn, 2010).

Individual choices are certainly pivotal for the character of a place. By choosing to buy a house in a certain neighbourhood and not in another, by opening shops in certain streets, by renovating flats in particular ways, by proactively safeguarding the public spaces of your neighbourhood, or not, or by keeping a well-kept garden or balcony, individual citizens have crucial roles to play in shaping the city, or neighbourhood where they live.

For this reason, Dagmar Haase (2012) defends that there is the need for the inclusion of social sciences knowledge into models testing urban shrinkage in order to obtain more reliable information regarding shrinkage:

> "shrinkage requires additional empirical and agent- and household-related knowledge to simulate and explain the process" (Haase et al., 2012, p. 101)

Certainly, there are broader scaled actions that have deeper impacts, such as the closing down of a nearby factory that provided jobs, a strategic public investment in one area to the detriment of another, or particular housing/welfare regulations. Or, for example, as in the case of Portugal, the promulgation of a law that froze rents for four decades, meaning a mismatch between living costs/inflation and rents. Property owners saw their financial capacity to maintain their properties endlessly diminished. This fact had a huge impact on the "face" of some Portuguese cities, especially, city centres (point 7.3.1).

In times of crisis, typically, the action power of states or public entities is diminished through a disruption of public funds. For example, in Detroit, for some decades public authorities invested in a series of urban rehabilitation projects, such as the Jefferson-Chalmers neighbourhood, a financial disaster. Recently, Detroit's city council announced it was bankrupt and therefore, future investments will most certainly have to rely on private investment, individual choices and communities' capacities to act. These situations will undoubtedly conduct to an increasing interest in the channeling of action and power from central governments to local communities.

[16] Brent Ryan explores the case of Odhams Walk in Convent Garden, London.(1982)

For example, in the city of Lisbon, some urban actions in declining neighbourhoods are subsidised by council funds, but local stakeholders are becoming increasingly, the heads of the projects and of investment actions (Programa de Habitação de Lisboa). This trend explains the rising interest in themes like the temporary use of space (Kuhoutek & Kamleithner, 2003), space appropriation and self-governance of communities (Madanipour, 2010), the re-cultivation of nature within urban spaces (Allaert, 2001; Barthel, 2013; Rosol, 2005; Stuart, 2005), or urban guerrilla activities (Mikadze, 2015). However, these desired proactive stewardship actions seem more likely to happen in cohesive communities with strong place attachment levels (Florek, 2011; Dekker, 2007; Carrus, 2014; Manzo, 2006; Manzo, et al., 2014; Halpenny, 2010), and with good access to key resources. Depopulation is also a probable counterforce to these key ingredients by means of weakening the

> "sense of community, social cohesion, provision of amenities and quality of life" (Popham, et al, 2011, p.1216).

Although there is some controversy over the impact of depopulation on the quality of life,[17] it seems clear that there is some level of contradiction between the generally accepted criteria for the assessment of quality of life (QoL) and some common traits of a depopulating environment. For example, the World Health Organisation (WHO) assessment of QoL is based on four dimensions: physical health and wellbeing; psychological health and wellbeing; social relations; and environment (Saxena et al., 2001); and the European Environmental Agency (EEA) presents only three basic QoL indicators: health, environment and social equity. The following description is presented by the EEA in the report, *Ensuring quality of life in Europe's cities and towns*:

> "Together with growing incomes, better paid jobs and rising levels of education, good health and secure family and social relations remain key determinants of individual happiness and fulfilment (Eurofound, 2008). The urban environment influences human physical, social and mental wellbeing, therefore, a healthy, supportive environment is indispensable to quality of life in cities. People need to breathe clean air, have access to clean drinking water and adequate housing conditions, and enjoy quiet and peaceful places. Accessible, good-quality, well-maintained green spaces and playgrounds, modern transport systems and safe, walkable neighbourhoods that encourage physical activity and social interactions are key constituents of urban quality of life." (EEA, 2009, p.13)

[17] The literature shows contradictory results concerning the impacts of depopulation on QoL levels. If, for example, Schetke and Haase (2008) found no correlations between depopulation and higher, or lower, levels of quality of life in the city of Leipzig, on the contrary, investigations into the cities of Detroit (Anon, 2014) and Glasgow (Popham, et al. 2011) show a high correlation between depopulation and low levels of social cohesion and health conditions of the inhabitants, two key factors of quality of life. The results in Leipzig might be justified by the fact that objective QoL measurements and comparisons are quite difficult, to obtain since the assessment methods and the city contexts are normally quite diverse. Even empirically, there is no agreement on the qualitative criteria that determines quality of life. However, there are wider scoping criteria generally accepted, namely, by the World Health Organisation.

The presented conditions for high QoL levels are contrary to the characterisation in the literature of an urban depopulated context of the late twentieth/beginning of the twenty-first century [18]. Instead of "growing incomes and better paid jobs", these neighbourhoods normally show high rates of unemployment and a stagnant employment market (Fritsche et al., 2007); instead of "good health", there are higher levels of child mortality (Wilkerson,1987) and overall mortality (Norman et al., 2005) as in the cases of Detroit and Glasgow, respectively; instead of "adequate housing conditions", there are high rates of dereliction (Rink & Haase, et al., 2012); instead of "well-maintained green spaces", there is a rise in urban vacant lots with abandonment signs (Ryan, 2013); and instead of a "safe (…) neighbourhood", there is a rise in perceived fear (Oswalt 2008; Brownlow 2006)[19]. So, although in the case of Leipzig, severe depopulation did not seem to have an impact on QoL levels, probably this was because of strong government investment in the city and the stable economic network of Western Germany[20], whereas, areas with no extra investment sources seem to be more prone to showing signs of low QoL[21]. Knowing that each city is a city, and each neighbourhood a neighbourhood, depopulation is in this study considered as a risk factor for appropriate levels of QoL.

This last assumption is particularly important since several studies support a positive correlation between low quality of life and low place attachment levels (Azevedo, C., et al, 2013; Ogunseitan, 2004) and therefore, there is a higher probability of lower levels of stewardship by residents within these contexts (Carrus, Giusepe, 2014; Dekker, 2007; Florek, 2011; Manzo, 2006; Manzo, et al., 2014; Halpenny, 2010).

Place attachment is generally considered as the emotional bond between people and their place of residence. Being shaped by the people that inhabit it, and by the inhabited place, it is, however, a third reality, i.e., the subsequent tie that is developed between residents and their dwelling contexts. In this sense, and according to Seamon (2014), place attachment is an intrinsically phenomenological concept, since it is a unified reality, or rather, a phenomenon[22] composed by people in their place. It is probably a concept akin to that of the greek word *chora,* meaning the emotional reading of a place, and that later developed into words such as enclosure, garden or orchard, and that in Latin corresponded to *hortus* (Rykwert, 2007). Different authors support the idea that a categorization of this large scope concept into different dimensions can permit a better comprehension of the phenomenon and of its implications. For instance, Woldoff

[18] As seen before, the population shrinkage in some urban neighbourhoods in the industrialized cities of the 19th and beginning of 20th centuries was a positive sign, since it was a symptom of 'unslumming'.

[19] The reports also add that perceived safety and socio-economic status seem to play a pivotal role in QoL levels.

[20] Haase's study (2008) was developed after governmental investment/actions.

[21] Even if not objectively measured.

[22] A phenomenon in Husserl's theory of phenomenology is conceived as "objective intentional contents (sometimes called intentional objects) of subjective acts of consciousness" (Smith, 2013).

(2002), describes three different main dimensions of place attachment (PA): (1) the attitudinal dimension, i.e., the emotional and critical evaluations of people regarding their neighbourhood; (2) the behavioural attachment through neighbouring, i.e., social interaction with neighbours; and (3) the behavioural attachment through problem-solving, i.e., a proactive behaviour in the solving of actual problems in the dwelling neighbourhoods. In fact, some studies in deprived or declining neighbourhoods sometimes show an exaggerated positive attitudinal attachment, although weak neighbouring or problem-solving actions. So residents can report strong emotional ties regarding their neighbourhood, but be non-proactive in promoting its preservation, or on the contrary, be especially aware of its negative aspects but highly proactive in defending the space from vandalism, or other destructive phenomena. Even within one dimension of place attachment contradictions can be found, for example, in the research developed by Woldoff (2002), more educated residents were less emotionally attached but more positive in their critical evaluations of neighbourhood space, two aspects of attitudinal attachment, whereas, less educated people were more emotionally attached, however, they showed a more negative evaluation of the space. So, the exaggerated positive levels of place attachment in deprived communities can stem from emotional reactions to the space and do not necessarily mean a consequential action (neighbouring or problem-solving). With these contradictory results in mind, it is worth re-emphasising that most authors suggest there is a correlation between high levels of place attachment and high levels of stewardship. In the words of Carrus (2014), referring to studies looking at place attachment and community behaviour:

> "Taken together, these studies suggest that more attached individuals are more likely to contribute to the well being of their community through civic activism and the protection of their environment." (Carrus, 2014, p. 156).

A valuable input into the impacts of economic decline and depopulation in place attachment levels has been made by B. Brown (2003) in the study, *Place attachment in a revitalizing neighbourhood: Individual and block levels of analysis*, where a series of in-depth interviews were conducted with residents of a neighbourhood with declining population numbers in Salt Lake City. B. Brown (2003) corroborates the hypothesis that depopulation acts negatively on levels of place attachment, since the sense of collective efficacy, the perceived fear and the temporal and/or financial investments seem to be negatively affected in these contexts. And concludes that residents more aware of negative aspects of the neighbourhood, for example, graffiti, crumbling sidewalks, litter or poor roofs, showed less attachment to their neighbourhood. Those who were attached to their neighbourhood were less aware of those problems and in fact, more likely to initiate restorative actions. Other aspects that signalled higher place attachment levels in Brown's

study were: (1) house property, (2) a sense of collective efficacy[23], (3) low perceived incivilities and (4) a low fear of crime. Brown's study reinforces the idea that high place attachment levels indicate more community stewardship actions and, more importantly, that an awareness of crime, incivilities and low investment are symptoms of a community with low levels of satisfaction with their neighbourhood of residency.

The mismatch between reported place attachment and reported proactivity or stewardship might be connected with a phenomenon described as 'the dark side of social capital'. This concept is rooted in one other concept, that of 'social capital' itself. Social capital is defined as,

> "the resources embedded in social networks" (Lin & Erickson 2008, p.4)

or as a set of socio-structural resources

> "that have two characteristics in common: they all consist of some aspect of a social structure. And they facilitate certain actions of individuals who are within the structure" (Coleman, 1990, quoted in Kawachi, Takao, & Subramanian, 2013, p. 3)

The literature regarding the concept of 'social capital' indicates social support as an important asset for the endowment of human resilience, better physical and mental health, especially in areas and periods of particular inequality and harshness (Koyama et al., 2014; Kim, et al. 2008). This strand of research indicates that cohesive and supportive communities, where

> "interpersonal trust and norms of reciprocity and mutual aid" (Kawachi, 1999, p. 122),

are viewed more positively, show a higher prevalence of longer and healthier lives.

Communities with high levels of social capital are those where the number of residents willing, or prepared, to help other members of the community is higher. And the extent to which they are prepared to help is also higher. Moreover, the resources accessible to members of a community with strong social capital, as a whole, are more diverse and rich (Lin, 2008, quoting Flap, 2001). Good levels of social capital reinforce social cohesion and collective efficacy, meaning that supportive communities tend to be better equipped with the right tools to engage in proactive actions that can change the present situation in order to achieve a common good for that particular community. The vast literature on the topic of social capital argues that high levels of it are linked with better physical and mental health as well as general wellbeing. Moreover, it also states that communities with strong social capital are more resilient to disasters or to high crime periods within their communities (Kawachi et al., 2013). The dark side of social capital seems to happen in communities with strong social cohesion and supportiveness, but where the resources to be shared are meagre and often negative. Kawachi et al. (2008), in the introduction to his book, *Social Capital and Health: A Decade of Progress and Beyond,* presents the work of Portes

[23] Collective efficacy is the perceived capacity of a given community to pursue an aim and achieve it (Sampson, 1997; van der Land & Doff, 2010), endowing the community with an enhanced sense of control.

(1998) where the dark side of social capital was explored. Some of these more negative symptoms are:

> "(a) excessive demands placed upon members of cohesive groups to provide support to others; (b) expectations of conformity that may result in restrictions on individual freedom as well as intolerance of diversity; (c) the exercise of in-group solidarity to exclude members of out-groups, or in some cases, even to oppress them; and (d) the down-leveling of norms within a tightly-knit group that can hold back the prospects of upward social mobility." (Kawachi et al., 2008, p.5)

For example, the down levelling of norms might expose these neighbourhoods to crime, generalised drug and alcohol abuse, suicidal ideation, or the naturalisation of incivilities. Interestingly, the "broken windows theory" holds that the smallest signs of social disorder, such as broken windows, are symptoms of an incipient criminalisation process. Inspired by this theory, in the 1990s, New York's police force focused more on small-scale incivilities in order to break the chain of crime progression at earlier stages. The results seem to have been astonishing, with a reduction of almost 50% in the homicide rate (McKee, 2014).

The consequences of the dark side of social capital might prevent communities from proactively working towards a common good and also to enhancing community members' wellbeing, health and resilience to negative episodes. According with Cattell (2001), there are three main factors that impoverish social networks: acute levels of poverty and social exclusion; a negative perception of the neighbourhood's characteristics; and negative social consciousness. According to the refereed study, people with wider and more diverse social ties are less vulnerable to stress and consequent health problems, being the participation in local organisations or voluntary groups a key path to that enrichment. Moreover, Cattell also argues that very tight knit traditional communities, such as those in the East End of London, with a working-class community based on family and street ties, although socially well supported, often present obstacles to the establishment of spontaneous local organisations. These local organisations are described by Cattell as the ones that enable more effectively the widening and enrichment of a community's social network, even if loosening it, and therefore, creating better opportunities for their residents. The research work of Lin (2008) corroborates these findings, arguing that individuals with wider and more diverse networks have better access to jobs in general, namely, to better paid ones, and a higher probability of having influential political and civic roles. Lin also discusses how access to those wider and more diverse networks is determined from birth, with the job, social position and social networks of one's parents determining a person's social capital from the start:

> "Both social exclusion and concentrated poverty imply some form of impoverished social networks."(Cattell, 2001, p. 1502)

Also, Kwon & Adler's (2014) review on social capital reinforces the existence of marked inequalities regarding social networks for different educational and socio-economic segments of society, and not surprisingly, people with lower educational and socio-economic profiles have weaker social networks.

Moreover, data from Islam et al. (2006) have demonstrated, thorough an exhaustive comparative analysis of research undertaken around the world, that societies that have greater gaps between poorer and wealthier people show sharper impacts of the lack of a supportive community on the health of the poorer segments of the population. Kawachi (2008) discusses these results by suggesting that the presence of stronger social welfare systems in more egalitarian countries, releases the ultimate need of a closer social network for health assistance in times of need. And the mere presence of these networks prevents the episodes of need themselves.

Regarding the relevance of social capital to depopulating contexts, the work of Nassauer & Raskin (2014) presents social capital as key for the rekindle of depopulating neighbourhoods:

> "Nurturing social capital for remaining residents should be a consideration. This may be achieved partly by recognizing and respecting physical evidence of neighborhood bonding social capital. It also may be achieved by leveraging public capital investments to be recognizable as physical evidence of bridging social capital at neighborhood scales." (Nassauer & Raskin, 2014, pp. 251/252)

Besides segregation of poorer and less skilled people, with the consequences as discussed, above, depopulation also forces fragmentation upon communities, due to the natural dis-densification of people. This factor presents its own challenges for the life of a community or neighbourhood. Several academic researches have postulated for decades that a city's high density is a promoter of innovation and knowledge, which in turn drives economic growth and more employment (Jacobs, 1961a). As discussed earlier the presence of skilled and creative workers in a community seems to also be a driving force for economic progress. However, (Knudsen et al., 2008) went further in the analysis of the impacts of density *per se*, and density of creative workers *per s*e, in levels of innovation and patenting activity. The results of a comparative regression analysis indicate that

> "density and creativity separately and jointly affect innovation in metropolitan areas"(Knudsen et al., 2008, p.1)

So, it is not only the presence of a special segment of the population, but density in itself seems to be a driver for innovation and knowledge spill-overs. Dispersal of the population, therefore, with the consequent social fragmentation, adds to the segregation, in terms of preventing these already depressed communities from being able to counteract its effects.

The strengthening, diversification and qualification of these communities seems to be in itself an important target to be taken into consideration, along with other factors such as appropriate adaptations of the urban fabric and its open spaces. In order to achieve this enrichment and

strengthen the community, it is crucial to better understand what is attractive to potential new residents, i.e., house searchers. In the light of this knowledge, future interventions within these neighbourhoods might become more effective in attracting new residents.

Moreover, under weaker governmental actions typical of scenarios of depopulation, understanding how different stakeholders perceive this problem is crucial to understanding better how depopulation might be tackled, forensically, with less costs and more benefits for all, and also, to understand general principles that might guide their potential actions.

6. Summary

As discussed previously, with regard to the symptoms of decline in the ancient imperial city of Rome described by Christie (point 2.2), there are evident parallels in contemporary shrinking cities, such as: (1) massive abandonment, resulting in some cases in demolition, like in Detroit (USA), Ivanovo (Russia) and Saint Louis (USA); (2) infrastructural downsizing (Youngstown, Ohio, USA); (3) a rebirth of urban subsistence agriculture (The "Sisters of the Soil", Detroit (USA)); (6) and in some cases, processes of re-concentration can already be found in cities like Léon (Spain).

Regarding the last symptom, as forementioned briefly, the literature indicates that denser cities are more sustainable in a number of ways, for example, in terms of carbon footprint, infrastructural use and energy efficiency. Therefore, denser historical core cities are potentially more sustainable than less dense suburbs and a re-concentration scenario is welcomed by many. However, the core cities of Europe and North America are precisely the areas most affected by sharp depopulation trends, which, in turn, adds to the energy inefficiency of these cities' neighbourhoods and appears as a lost opportunity. Although in some cities the re-urbanization process is already well under way, and is especially associated with the 'second demographic transition' (Haase et al., 2008), the urban declining trend is still considerable in the cores of many European cities' (Figure 8).

As for green spaces, the major concern of this research project, the replacement of unnecessary buildings by green structures, for example, in cities like Leipzig, helped to achieve the desired demographic stabilization. However, is this also the correct approach for cities with older and denser urban fabrics? In this context, the comparison of the history of open spaces with population fluxes is illuminating. Population shrinkage is associated with smaller and protected domestic open spaces, and simultaneously, with the expansion of forestland and agricultural fields near urban settlements. Today, some shrinking cities are already going through forest expansion, like Dresden and Detroit in and around their urban territories (Chapter 4). From a landscape point of view, sharp depopulation can create the possibility for greater availability of green open spaces, with the associated health benefits for citizens, as Hollander puts it:

> "abundance of vacant land create unprecedented opportunities to improve green space networks and natural systems in shrinking cities. Capitalizing on decline to set aside land for recreation, agriculture, green infrastructure, and other non-traditional land uses will benefit existing residents and attract future development, and enable shrinking cities to reinvent themselves as more productive, sustainable, and ecologically sound places" (Hollander, 2009, p.1);

Moreover, population shrinkage is associated particularly with high levels of social segregation. As described in Chapter 5, social segregation can have strong impacts on people's health and wellbeing, therefore, attracting new inhabitants from different racial and socio-economic backgrounds is essential to counteract these trends and re-create healthier communities. Therefore, greater knowledge of the impacts of depopulation relative to people's needs is crucial to better understand if Hollander's insight is not only theoretical but real, in people's minds, needs and preferences. Otherwise, the opportunities created by sharp depopulation might be much less relevant than expected.

If cities are certainly transformed by economic and political conditions, by 'master planners' (particularly in the industrialised era), they are also always profoundly transformed by numerous individual choices. In the context of an economic crisis, the role of the anonymous citizen becomes even more prominent since the "state" lacks the means to take stronger action. It is important, therefore, to understand how depopulation affects residents' perceptions and preferences regarding their residential context, in order to better comprehend, not only how our cities might evolve, but also, the appropriateness of future urban interventions. In the PhD thesis, "What helps or hinders the adoption of 'good planning' principles in shrinking cities? A comparison of recent planning exercises in Sudbury" (2010), from Laura Schatz, some recommendations for further research are given to academics who are studying declining cities. Some of these recommendations defend that planners must leave behind the assumption of future growth; must use processes that are strategic, with an emphasis on citizen participation; must adopt a balanced approach in addressing the physical, economic, environmental and social needs of the community; and, must change the role they play in the community. In fact, Schatz (2010) asks herself:

> "Why do social concerns tend to be left by the wayside in planning in cities experiencing population and economic decline? What can be done to make sure they are an integral part of the planning process?"(Schatz, 2010, p. 330).

Following the suggestion of Schatz (2010) to further pursue the question, "What does accepting decline really mean?", this research intends to elaborate future scenarios that can give insights into how decline can change the urban realm and what are the reactions of experts, residents and future residents to those scenarios? The construction of scenarios when dealing with

complex realities, such as cities, implies the elaboration of a proper framework of change, i.e., a better understanding of the key factors for the construction of different scenarios.

Three main consequences of urban shrinkage are of interest for this particular study: the deterioration of the urban fabric and consequent potential transformation and disruption (Chapter 3); the impacts of these disruptions in the role of open spaces in the city, namely, in the potential of higher use preferences for different typologies of open/green spaces (Chapter 4); and finally, the community disruption that is normally associated with sharp levels of depopulation (Chapter 5).

The construction of the scenarios, therefore, is based on a three-point framework composed of the potential disruption to the community, the potential transformation of the urban fabric, and the potential impacts of depopulation relative to the need for new typologies of open and green spaces (Figure 9).

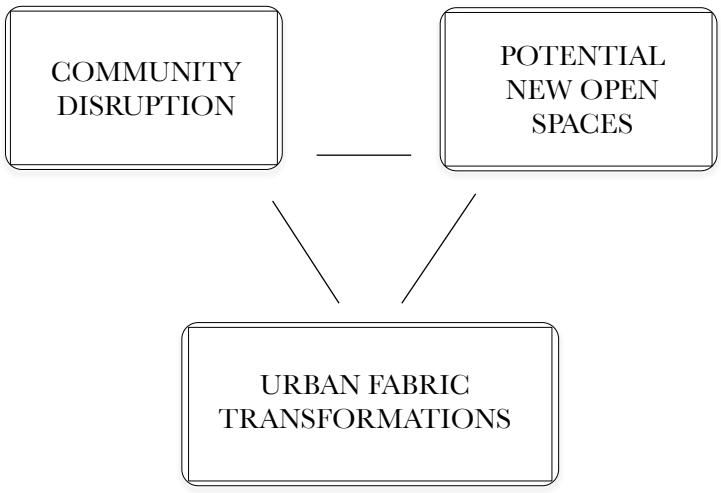

Figure 9. Framework of analysis, and basic points for the construction of scenarios.

In this way, some clarity can be brought as to whether urban decline can truly be seen as an opportunity, as suggested by Hollander (2009), or if, on the contrary, as suggested by Oswalt,

> ”the idea of shrinkage as a new potential can be understood as cynicism. Shrinkage is initially a negative development for the majority of the population, which manifests itself most immediately in their flight” (Oswalt, 2006, p.13).

SECTION II

7. Research Outline

7.1 Aims and Research Hypothesis

The main aim of this study is to better understand what changes in the urban realm are more effective in attracting new residents and retaining existing ones, namely, by better understanding how depopulation can affect residents' perceptions of, and preferences in relation to, hypothetical residential environments. These findings can then inform landscape architecture experts' practice so that they understand better, not only how to incorporate potential new open spaces into the urban fabric, but also to predict how these spaces could be generated in the most suitable way and respond more appropriately to the current needs of residents. According to Dettmar (2005), in the context of urban depopulation,

> "…landscape architecture has been brought more sharply into focus in the search for new approaches to solutions" (Dettmar, 2005, p.263).

Given this issue exists and needs to be addressed, there seems to be a lack of understanding of the needs of current and potential new residents, in these contexts. This research project, therefore, addresses this gap by focusing on the following hypotheses:

1. Depopulation/urban vacancy might be a potential asset for neighbourhoods losing their population.

2. Depopulation/urban vacancy increases residents' acceptance of the possibility of urban redevelopment and deep changes in their dwelling environment.

3. Depopulation/urban vacancy decreases feelings of place attachment and therefore, decreases the probability of good levels of stewardship.

4. Urban depopulation triggers the need for people to live in greater proximity (higher urban densities) to each other.

5. Urban depopulation triggers the need for a stronger sense of community.

6. Urban depopulation triggers the greater appeal of open/public/green spaces on a smaller scale to generate feelings of protection, control, and community space.

7. Potential newcomers value different aspects of a neighbourhood when compared with residents of depopulating neighbourhoods.

The research strategy adopted to address these hypotheses is described below.

7.2 Research Strategy, Methodologies, and Design

In the following point, the research strategy used in this project is discussed and its broadest lines and principles presented, plus the methodologies used and the overall research design. One of the key options in this project is the use of a "scenario development" approach to address the main research questions. However, the development of this strategy has had different stages of investigation as discussed below.

7.2.1 Scenario Development as Research Strategy

Scenario development is an approach based on the construction and description of several possible future states of the world. Rooted in the idea that "the future is not a static continuation of the past" (Mahmoud et al., 2009, p.799) but a starting point of many possible new situations, it has proven to be a very useful tool to prepare decision makers to deal with uncertainty (Postma & Liebl, 2005; Mahmoud et al., 2009). More than making predictions, this approach considers plausible future possibilities, either probable or not, in order to inform decision-making. Moreover, it has been used successfully to build bridges between academic and technical experts and decision makers. Deming (2011) termed this approach *Dynamic Simulation Modelling*, but in the landscape field of knowledge, it is also known as *Alternative Landscape Futures Modelling*. More than generating knowledge about the processes at stake in a mutational environment, this approach:

> "…generates emergent results that arise from the relationships and feedbacks within the model that were not previously recognized or understood" (Deming & Swaffield 2011, p. 105)

When the realities under consideration are too complex, as in the case of landscape and urban environments, it is common to focus on a theme related to the most critical variables specific to the context and/or research interests (Mahmoud et al., 2009). This approach has been used by authors like Carl Steinitz, for example, in his book, *Alternative Futures for Changing Landscapes: The Upper San Pedro River Basin in Arizona and Sonora* (2003). The development of the scenarios was based on the historical background of the area, its demographic trends, and on stakeholders' inputs.

Similarly, in this doctoral project, the chosen criteria for the development of the scenarios was based on the demographic and urban factors that are more likely to be influenced by a sharp process of depopulation, and on the input of the residents and stakeholders. Therefore, three different and complementary, methods were used to test the hypotheses presented at the beginning of this section. The first two methods were of a more qualitative and exploratory nature, exploring the key issues raised by stakeholders and residents, whereas the third method used is considered to be part of the quantitative family of research methodologies, and explores preferences regarding different scenarios.

The division between qualitative and quantitative methodologies is increasingly controversial (Symonds & Gorard, 2010), but in this research, this dominant research division was still applied. The use of different methods in the one same research project permits the incorporation of the advantages of each one and bridges their respective weaknesses. Traditionally, quantitative approaches are seen as strong in terms of objectivity and generalizations, whereas qualitative approaches permit an in-depth perspective, open to reality's complexity. These two dominant research strategies – quantitative and qualitative – are based on distinct philosophical paradigms. The first one assumes that "reality is objective" (ontological assumption); that the "researcher is independent of the topic that is being researched" (epistemological assumption); that the values of the researcher are kept out of the study permitting unbiased perspectives (axiological assumption); and that the process of research is deductive (methodological assumption). Qualitative research strategies, on the other hand, assume reality is "subjective and multiple"; the researcher is an interactive being with the researched realities; the values of the researcher are an inevitable part of the research; and the process of research is inductive[24] (Creswell, 1994).

For many years, these two perspectives were considered mutually exclusive, however, since the 1960s, the complementary nature of both techniques has been explored, namely, to be able to confirm or extend results through different approaches – triangulation – thereby increasing validity and avoiding generalisations (Symonds & Gorard, 2010). The philosophical paradigm that supports the complementary nature of the qualitative and quantitative research approaches is denominated critical realism. Critical realism is a philosophical paradigm developed by Roy Bashar, on the basis of the philosophy of perception that assumes that part of reality is objectively apprehensible but there are other parts of reality that cannot be objectively apprehended. In other words, critical realism postulates that there is always a part of reality that is biased by a subjective perception, but also, that not all reality is subjective, and therefore, there is the

[24] A deductive reasoning reaches new knowledge by testing a theory in real life (observations and experiments), whereas inductive reasoning reaches new knowledge first by observing real life that then permit the construction of new theories. The first process is "top-down", from theory to observation, and the second one is "bottom-up", from observation to theory. Currently, both types of reasoning are considered complementary in a circular movement of observation – theory development – more observation –theory refinement…etc. (http://www.socialresearchmethods.net/kb/dedind.php)

possibility of, and the need for, both quantitative mechanisms of investigation and qualitative ones. According to Lund (2012), the use of mixed methods has presented four main advantages: (1) mixed research methods are more efficient in responding to complex research questions than only qualitative or quantitative methods; (2) qualitative and quantitative research methods can be complementary and therefore, deliver a more complete picture of the study area; (3) the inferences provided by mixed methods can have greater validity; (4) the results of the different methods in a mixed methods study can be divergent, providing more clues for a revision of the hypotheses and for future investigation. For example, it is common to use qualitative approaches to develop a grounded hypothesis, and to use quantitative approaches to test such a hypothesis (Lund, 2012). In some cases, researchers use two methods to answer the same question and test the robustness of the results of one, or both. In other cases, a first method feeds into the second, providing crucial information for a better research approach. This second way of using mixed methods is denominated "developmental", i.e.,

> "…the first method is used sequentially to help inform the second method" (Creswell, 1994, p.175).

However, the use of both research methods is distinct, in what Creswell denominates a two-phase design[25]. It is this developmental approach that has been followed in this research[26]. Besides the preliminary choice of Lisbon and Genoa as case studies (point 7.3), the two stages of research were the following:

The first phase was mainly qualitative and exploratory and aimed to better understand the key issues of concern for experts in the field, through the use of in-depth, semi-structured interviews, and for residents living in depopulating environments, through the use of focus groups. This family of qualitative research tools is especially suited to understand a problem in its complexity. It is crucial, therefore, to understand it from different perspectives and to access knowledge that can only be acquired through investigating the everyday experience and lives of those who have daily interaction with it (Deming, 2011). Following this premise, these social surveys were used in two different ways: on the first hand, as an information asset for the development of neighbourhood scenarios; and on the other hand, as the way to test experts' views of this problem and sensitivities towards the possibility of profound changes in the urban fabrics, and residents' perspectives on their current dwelling conditions, their likes and dislikes, and their emotional attachments to the neighbourhood.

The second phase adopted a third research method concerning the testing of hypothetical scenarios of change, with residents and non-residents of depopulating neighbourhoods. In fact,

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[25] In opposition to a *dominant-less dominant design* or a pure *mixed-methodology design*. In the first one, there is one paradigm that is dominant, and in the second, all phases of the research mix the two paradigms and the inductive and deductive processes of thinking.

[26] However, interestingly, the results from both research approaches ended corroborating each other.

three different groups of participants were tested: residents of depopulating neighbourhoods, residents of neighbourhoods that were gaining population (growing neighbourhoods) and house searchers (residents in the metropolitan areas of Lisbon and Genoa). In order to pursue this intention, a technique entitled conjoint analysis was used (point 7.5).

7.3 Case Studies: Lisbon and Genoa

A necessary stage of the research strategy was the choice of case studies. This was also the first stage of the sampling strategy: a multistage purposive sampling, in the sense that it selected, specifically, European cities losing population, in the whole or in some parts, steadily, and for a considerable period of time.

A case study strategy is regarded as appropriate when the research question being posed is a "how" question, when the studied phenomenon is a contemporary one, when there is not much control over the object of study, and when it is a "real life context" (Yin, 2003). Since the mentioned criteria apply to this research, the question is: "How does depopulation affect residents' perceptions of, and preferences with regard to, their dwelling contexts?" Equally, when the object of study is a real life contemporary situation, not prone to much control, i.e., urban neighbourhoods – a case study approach is considered a good fit. Moreover, numerous authors, like Schatz (2010) or Rink & Haase (2012), highlight the necessity of undertaking comparative case studies of shrinking cities in order to achieve a better understanding of the overall process of urban depopulation. In this research, two cities, and four neighbourhoods were selected as appropriate case studies, as is described in the following points.

In research, there are different approaches that can be taken when using case studies, as described by Stake (1995), according to the different levels of generalization intended. For example, the focus of *intrinsic case studies* is the case itself, typically, with few concerns about possible generalizations, and therefore, this method provides a deep insight into the particularities of the case study that has been followed. At the other end of the spectrum, Stake describes the *collective case study* approach, where comprehension of a wider phenomenon/issue/process is the aim, and therefore, the number of case studies increases as the depth of exploration of each case decreases. Between these two approaches, Stake describes *instrumental case studies*, as those where:

> "The case is of secondary interest; it plays a supportive role, facilitating our understanding of something else" (Stake, 1995, p. 237),

but where,

> "…the case is often looked at in depth, its contexts scrutinized, (…), because it helps us to pursue the external interest." (Stake, 1995, p. 237).

For this research project, the aim is certainly to achieve a broader understanding of the phenomenon of urban depopulation, however, the scope of this work is not worldwide, nor even European-wide. The use of case studies in this research, therefore, falls under the category of *instrumental case studies*, since the use of the two proposed cases – Lisbon and Genoa – are probably useful for a second comparative phase, but they are, nevertheless, rooted in their particularities.

In selecting *instrumental case studies* for this research, it implies choosing a sample that represents the population and the problem. Moreover, the sample should bring a useful variation for the broader theoretical picture. These are also objectives while opting for a random selection of case studies, typical of experimental research approaches. However, when the number of case studies is quite small, the random choice diminishes the representativeness of the cases by means of increasing the potential variance (standard deviation[27]) of the sample. Therefore, when the number of cases is small, a purposive case selection seems to be more appropriate, when preceded by acknowledgment of the particularities of the case studies, namely, understanding if they represent extreme cases or "typical" ones, for example (Seawright & Gerring, 2008). The choice of typical cases is normally associated with the intention to confirm or deny a current theory regarding the causality of the studied problem.

Another strategy is to choose diverse case studies, allowing greater representativeness, and an exploratory nature of work particularly suited to the development of a research hypothesis. In this research, there is probably a mixed approach regarding the case study choices. Although southern European cities are not typically associated with urban shrinkage, some of them have been going through considerable population losses, particularly in their historical centres, because of suburbanization processes. In the last few years too, with the current economic crisis, some metropolitan areas in southern Europe have started to lose part of their population due to emigration of younger and more skilled segments of population. Most literature reflecting on urban depopulation is focused on the examples of countries like the USA, Canada, Germany or the United Kingdom, where the "typical case" of a shrinking city is normally associated with the deindustrialised cities of former heavily industrialised areas like the North American rustbelt or the German Rhur region.

Although in acknowledging that certain cities are particular realities, it is possible, in a broader worldwide view, to think of groups of cities according to their political, economic and cultural circumstances. In the words of Salvati, referring to Leontidou's (1993) city clustering:

> "… large Mediterranean cities have been usually grouped into a homogeneous class of cities separated from both the affluent, developed city prototypes of the United States and north-western

[27] Standard deviation, in statistical terms, represents the square root of the variance of a sample. And the variance represents the average difference between the value of the variable in the study for each case in the sample and the mean (model) (Andy, F., 2009).

> Europe, and the rapidly growing urban agglomerations of the emerging countries" (Salvati et al. 2013, p. 377)

In this research, on the one hand, focusing on two southern European cities, uses the techniques of typical case studies, since cases of similar character can be compared, but on the other, it can provide greater insight into the diversity of shrinkage, allowing a broader view of the research topic and subsequently, the formulation of new hypothesis for further research. It is relevant, therefore, to focus on Mediterranean cities, extending the reflection to other geographical regions, and in this way, widening understanding of this reality.

The specific choice of Lisbon and Genoa was based on data published by the Urban Audit Programme of the European Commission, a statistical cross-comparison of European cities. The table below (Figure 10) shows the Urban Audit ranking of intermediate cities, with population sizes between 500.000 and 999.000, according to population change from 1999 to 2004. The top cities are the ones that present stronger population losses. This was the only comparative data set known at the time that the case studies were selected and therefore Lisbon, Riga and Genoa were set as potential cases of study by occupying the first three positions.

Ranking	**Cities**	**Population Change (1999-2004)**
36	Lisbon (PT)	-1,82
35	Riga (LV)	-1,07
34	Genoa (IT)	0,99
33	Lódz (PL)	-0,66
32	Essen (DE)	-0,51
31	Vilnius (LT)	-0,34
30	Palermo (IT)	-0,25
29	Poznan (PL)	-0,21
28	Glasgow (UK)	-0,18
27	Napoli (IT)	-0,15

* Data from the Urban Audit site: http://www.urbanaudit.org/

Figure 10. A ranking of population change in Europe (by percentage) for cities with population sizes between 500.000 and 999.000 in 2004 (the category that encompasses most cities). With regard to the class of larger cities, with population sizes above 2 million inhabitants, including Rome, Berlin, Paris, London and Madrid, only Rome lost population in the timeframe under consideration.

Riga was excluded from this study not just for pragmatic reasons; the reality is that financial costs and the researcher's lack of knowledge of the language would not have made Riga a feasible case study. However, Riga is also part of a group of cities with a different socioeconomic and cultural background, a post-socialist city, making direct comparisons more difficult. In Riga, post-socialism and the collapse of a property bubble, there has been a period of decline whereas in Lisbon and Genoa, the situation is diverse.

Today, the Eurostat/Urban Audit has published comparative data whereby Lisbon and Genoa feature in first and second positions when their respective loss of populations for the

period 2010 and 2013[28] are considered (Figure 11). This data considers only cities with populations between 500,000 and 999,000 inhabitants. The table below shows the ranking of these cities according to their population change. Some countries, like Poland, Greece and Austria, presented data for different timeframes.

Pop Change 2010/2013

CITIES	%	absolute loss
Lisboa	-4,90	-25716
Genova	-4,71	-27426
Torino	-4,29	-37447
Hamburg	-2,30	-39952
St. Gallen	-2,28	-1691
Lausanne	-2,18	-2848
Bern	-2,18	-2774
Valencia	-2,14	-16964
Essen	-1,66	-9397
Dortmund	-1,61	-9221
Basel	-1,48	-2444
Hannover	-1,33	-6829
Porto (greater city)	-1,18	-11406
Praha	-1,12	-13957
Stuttgart	-0,62	-3707
Sevilla	-0,58	-4029
Zürich	-0,56	-2129

Pop Change 2011/2013

CITIES	%	absolute loss
Warszawa	-2,48	-42788

Pop Change 2006/2011

CITIES	%	absolute loss
Athina	-10,81	-285465

Pop Change 2009/2013

CITIES	%	absolute loss
Salzburg	-1,28	-1861

Figure 11. A ranking of population change in Europe (by percentage) for cities with population sizes between 500,000 and 999,000 for the timeframes: 2010/2013, 2011/2013, 2009/2013 and 2006/2011.

One of the difficulties of comparing the data above is that there are cities presenting information at the council level and at the larger urban area, which is for example the case of Lisbon. According with the urban audit, Lisbon's metropolitan area has lost some population between 2010 and 2013.

For a better comprehension of these differences, up to date information was collected in the national statistical institutions of Portugal and Italy, and in the city councils of Lisbon and Genoa. Although both data sources are not always coincident, they are consistent with the fact that Lisbon and Genoa are still declining, both at a city and metropolitan level (Figure 12).

Cities	Population Size* (2014)	Population Change* (2001-2011)	Population Change* (2011-2014)	Population Change/UA** (2005-2011)	Population Change/UA*** (2011-2013)
Lx City	509.312	-16.924	-33.128	28.627	- 25.716
Lx Metropolitan Area (LUZ)	2.809.168	160.026	-17.882	-	-
Ge City	596.958	-17.81	-15111,00	2.822	- 27.426
Ge Metropolitan Area (LUZ)	868.046	5.270	-19.901	-	-

***** Information from INE – Statistics Portugal (http://www.ine.pt/xportal) and Tuttitalia…www.tuttitalia.it (based on data from ISTAT – Statistics Italy (http://www.istat.it/it/)

[28] Data from: http://ec.europa.eu/eurostat/web/cities/data/database.

** UA - Urban Audit

*** http://ec.europa.eu/eurostat/web/cities/data/database

Figure 12. Lisbon and Genoa's population change, in absolute numbers, from 2005 to 2011 and from 2011 to 2014, according to different sources of information.

As southern European countries are currently affected by economic turmoil, the cities chosen for inclusion in this study might face prolonged economic shrinkage, which drives more emigration and less immigration. With the fertility rates of Portugal and Italy the lowest in Europe, there might be many years ahead where their cities continue to experience population losses, and public entities continue to lose the investment capacity to manage their cities. Moreover, in the case of Portugal and Italy, Lisbon and Genoa are not the only cases of urban shrinkage. For these reasons it is particularly relevant to study these cases.

Both Lisbon (França, 2008) and Genoa (Anon, 1924) are pre-Roman settlement cities, dominated by their harbours with highly dense city-centre cores. Probably for this reason, the first signs of urban depopulation in their core districts did not alarm the political authorities in both cases (Bini, 2011), and instead, were regarded as a positive process of "unslumming". However, the current average number of inhabitants per dwelling unit is reaching a historical low figure of 1,69 inhab/dwelling units in Lisbon[29] and 1,97 in Genoa. This has been a common trend in urban European areas in the last decades (EEA, 2009). Also, as is typical of declining cities, both Lisbon and Genoa have been going through processes of out-migration of young and educated people in the last five years, with influxes of labour forces from overseas or from Eastern Europe. In Lisbon, these new residents frequently come from ex-colonial countries, like Brazil and Cape Verde, or from Eastern European countries like Ukraine[30]. In Genoa, however, Ecuadorian nationals dominate the immigrant community that composes "the second largest Ecuadorian community" in the world, according to Bini (2011).

7.3.1 Lisbon

Like most western cities after the strong industrialization period of the 19th and 20th century, Lisbon, the Portuguese capital city, grew and sprawled at unprecedented rates. However, in the end of the 20th century, beginning of the 21st, Lisbon's council started to lose population very intensely to new suburban areas of the metropolitan area (Figure 13 and 14).

[29] Moreover, in the case of Lisbon, a council report shows that almost 60% of the households are under-occupied (Anon 2009).

[30] Although in the past few years, due to the economic crisis, many of these workers returned to their home countries (about 21.000 immigrants left Lisbon between 2001 and 2011 (in www.pordata.pt).

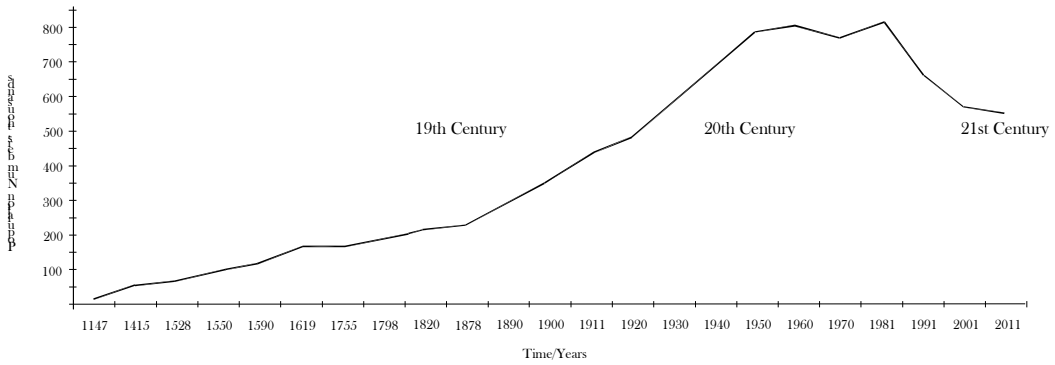
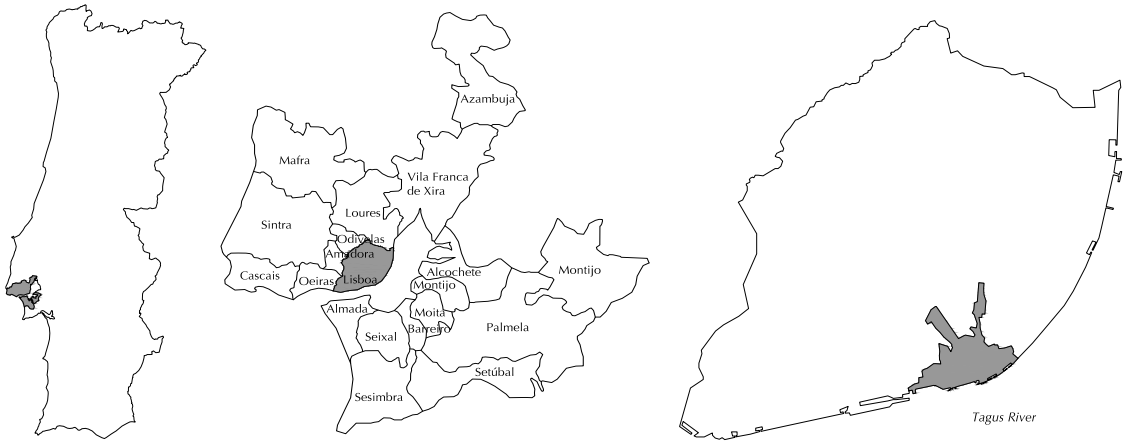


Figure 13. The evolution of Lisbon council's population since 1147, adapted from V. M. Godinho, 1981; A. H. de Oliveira Marques, 1983; J. H. Saraiva, 1984, from Statistics Portugal (INE), Illust.



Portugal (LMA in grey) / Lisbon Metropolitan Area (Lx Council in grey) / Lisbon Council/ most affected areas in grey

Figure 14. Lisbon's Metropolitan Area: geographical position and most affected areas

As usual, the timeframes of change in the urban fabric of a city are slower than its population changes. The exponential population growth of the 19th and 20th centuries was not followed immediately by the construction of a housing supply that met needs. The new city areas, with better and more spacious housing, like *Avenidas Novas* designed by *Ressano Garcia*, an urban extension from the late 19th and beginning of the 20th century, were mainly occupied by the upper middle class (Lamas, 2000b), leaving the historical city centre overcrowded with rural migrants in search of jobs in the big city.

A survey from 1934 developed by Gonçalo Ribeiro Teles shows how this immigration changed the urban landscape by infilling many inner courtyards of the oldest neighbourhoods of the city like *Santo Estevão*. Nevertheless, in the late 1930s, Sidónio Miguel (1939) mentioned the courtyards that *Alfama* still had and that do not exist in the new city of *Avenidas Novas*:

> " E não escasseiam por aqui os quintais que muitos habitantes das Avenidas Novas, em quartos e quintos andares de prédios com

> guarda-portão, muito humanamente invejariam" (Miguel, 1939, p.25)[31]

Only in the 1940s did the new housing construction contemplate other population segments, with social housing expanding to areas such as Areeiro (1938), Arco do Cego or Alvalade (1945), and in the 1950s, the neighbourhoods of Chelas and Olivais introduced modernist values to the city (Lamas, 2000a). In the mid-1970s, after the democratic transition of 1974, the construction sector was accelerated by the return of Portuguese populations fleeing ex-colonial countries like Angola, Mozambique or Guiné. Initially, again, the state was the main actor, with interventions like the *SAAL* project, but in the 1980s and 1990s, the private construction sector led the suburbanization process, facilitated by freer access to housing mortgages, with an extraordinary rise in homeownership never witnessed before in the country. Consequently, there was an overall reduction by 40% of the population of the inner Lisbon council, with the sharpest decline occurring between 1981 and 2011 (Figure.13).

This sharp reduction was considered positively, as a side-effect of a process that meant better housing for more people and less overcrowding problems in the city centre. Mainly, the city councils of *Amadora*, *Loures*, *Sintra* and *Almada* were transformed from small Lisbon satellite villages to massive urban sites and this trend was reinforced by immigration trends from Cape Verde, Brazil and Ukraine (Bell et al., 2010). The metropolitan area continued to expand its population size until 2001, however, the preliminary results of the Portuguese national census of 2011, and a more recent comparison of population numbers for the 2011-2013 period, show a small decline in the overall resident population in Lisbon's metropolitan area (LUZ) (Figure 12). This trend, although still quite moderate, is already a sign of population stabilization, probably due to a halt in the immigration flow, and to a new wave of emigration during the last four years of economic austerity.

The population shrinkage in Lisbon, especially in the Lisbon Council area, has been accompanied by an increase in the whole percentage of vacant housing. It is estimated that in 2011, the number of vacant buildings in Lisbon's regional area (NUT II)[32] was 12,4%, whereas in 2001, it was 11,5%, (Censos, 2011). Already in the decade 1991/2001, there was an estimated loss of 14% of the buildings of the city (Craveiro, 2009). But the biggest increase in the vacancy rate happened between 1981 and 1991 when it doubled, from around 5% to 10% (Anon, 2008). This was also the epoch of strongest suburbanization trends. In the 1990s, strong financial initiatives tried to reverse the dereliction trend in the historical city, with investments made mainly in the direct funding of buildings' rehabilitation and subsidised tenements for young

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[31] Trad. . "And here, there is an abundance of '*quintais*' (courtyards/kitchen gardens) that many inhabitants of the *New Avenues*, in their fourth and fifth floors of buildings with doormen, very humanly would envy."

[32] As seen in Figure 15, Lisbon's metropolitan area is composed of 18 councils, namely: Alcochete, Almada, Amadora, Barreiro, Cascais, Lisboa, Loures, Mafra, Moita, Montijo, Odivelas, Oeiras, Palmela, Sesimbra, Setúbal, Seixal, Sintra and Vila Franca de Xira

people. However, the city centre still has problems of severe dereliction and it is dominated by older segments of the population.

With regard to the data gathered in 2012 by Lisbon Council, the rate of vacant buildings in the Lisbon Council area is approximately 7%; 30% of which is located in the historical centre, the area most affected by population shrinkage. In the historical centre, there is also an even more dramatic problem, that of building conservation where approximately 25% of the buildings are in a serious, or very serious, condition (Craveiro, 2009). The causes of vacancy and dereliction are always complex, some of them have a global explanation – suburbanization and population stagnation[33] – while some are more specific. In the case of Lisbon, and Portugal in general, the legal framework is an important key to understand the accentuation of urban dereliction processes, namely, by the promulgation of the law – 201/75 - that forbade the update of rents by normal free market mechanisms and inflation[34]. After 30 years of a rent freezing policy, the results are abnormally low rents in the city centre, where there are higher percentages of older renting contracts. The extreme low rents resulted in landlords not having the financial capacity to maintain their properties well. The impact of this law was identified and admitted decades ago, by all the Portuguese political parties, however, it is only in recent years, after two further attempts, that the regulation of rents is coming back to normal market values in what is a long-lasting process (Ferreira et al. 2005). It is important to take into consideration that both the percentage of lost population and that of vacant/derelict buildings here mentioned are averages and that the situation in some neighbourhoods is severe and in others, almost non-existent.

When city council data are examined in more detail, it is clear that the central historical neighbourhoods are those most affected by urban depopulation (see Appendix I). Through analysis of demographic data, the five neighbourhoods that have had constant population declines in all decades since 1981 are: *Castelo*, *São Paulo*, *Santiago*, *Santo Estevão* and *Sé*. By comparing data from these five neighbourhoods, namely, indicators such as the average age of residents, their qualifications and building deterioration, the civil parishes of *São Paulo* and *Santo Estevão* were selected as sub-case studies for the city of Lisbon (Figure 15).

[33] The fertility rate in Portugal in 2013 was 1.35, below the European Union's average of 1,57. The other eight countries show fertility rates below 1,40: Spain, Italy, Latvia, Hungary, Poland, and Romania (mostly Eastern and Southern European countries) (Robustillo et al., 2013).

[34] It was still common in 2011 to have neighbours renting equivalent apartments, in the one, same building, paying as low as 10 euros and as high as 600 euros. This presents society with a difficult inequality problem.

Civil Parishes (LX)	*Population (inhab)*	*Pop. density (inhab/Km2)*	*Population loss 1981/2011 (%)*	*Senior rate**	*Green spaces** (m2/inhab)*	*Building deterioration *** (%)*	*Inhabitants above 20 years old with no qualifications (%)*
Castelo	619	1883	68,00	30,66	71,55	52,94	14,82
Santiago	355	2040	66,00	31,62	42,21	46,90	14,93
S. Estevão	1511	2272	67,00	30,58	5,12	23,96	16,80
S. Paulo	2728	965	59,00	24,73	7,32	48,74	12,61
Sé	1200	965	67,00	29,74	3,79	40,97	13,28

* Population share with residents more than 60 years old. Information collected from Statistics Portugal: http://www.ine.pt

** Area of green spaces per inhabitants. Information collected from Santos, 2009.

*** Percentage of buildings with structural problems. Information collected from Statistics Portugal: http://www.ine.pt

Figure 15. Some urban and social indicators for the five civil parishes in Lisbon with the steadiest population decline since 1981

The civil parish of Castelo and Sé were excluded because they are very particular cases in the city. In Castelo, the castle and its esplanade/enclosure occupy most of its territory, and in Sé, there is another iconic place with the presence of the oldest cathedral in the city. Both are highly touristic places with little resident population. Of the three remaining civil parishes, the ones with a far greater lack of green spaces were chosen, since the aim of this study is to understand whether or not depopulation can be accepted as an opportunity to implement a stronger green infrastructure.

Contrasting with the cases of declining resident populations, Lisbon has several neighbourhoods showing positive population changes. The table below shows some of those neigbourhoods, and proxy-equivalent indicators for the shrinking areas below (Figure 16):

Civil Parishes (LX)	*Population (inhab)*	*Pop. density (inhab/Km2)*	*Population growth since 2001 (%)*	*Senior rate* (%)*	*Green spaces** (m2/inhab)*	*Building deterioration ***(%)*	*Inhabitants > 20 yo, with none or basic qualifications (%)*
Alto do Pina	10333,00	700,00	0,78	22,51	25,91	20,24	40,64
Ameixoeira	11863,00	616,05	23,01	12,86	74,24	9,42	48,78
Carnide	23316,00	448,76	22,79	13,48	85,02	19,01	45,28
Lumiar	41162,00	282,64	9,20	12,61	72,82	16,90	28,72
Madalena	393,00	718,18	3,42	27,11	16,84	24,05	53,42
Mártires	372,00	640,00	9,09	23,46	16,42	42,19	44,87
Santa Justa	891,00	800,00	27,29	32,43	12,57	42,19	68,14
S.M.Olivais	51036,00	322,23	9,97	24,23	79,40	7,69	55,04
Santos-o-Velho	4020,00	1280,39	0,17	28,13	22,93	20,98	56,07
S.J. Arroios	18405,00	1430,97	5,75	30,00	12,44	15,89	47,69
São Nicolau	1231,00	936,00	4,77	32,51	17,02	46,15	63,32
São Sebastião	6342,00	560,95	8,02	29,26	83,53	11,71	36,91
Socorro	3065,00	4300,00	14,58	25,94	11,21	52,85	68,86

* Population share with residents more than 65 years old. Information collected from Statistics Portugal: http://www.ine.pt

** Area of green spaces per inhabitant. Information collected from Santos, 2009.

*** Percentage of buildings with structural problems. Information collected from Statistics Portugal: http://www.ine.pt

Figure 16. Some urban and social indicators for the thirteen civil parishes that started to show positive demographic growth from 2001 until 2011

The two neighbourhoods chosen to take part in the study, to contrast with the declining neighbourhoods of *Santo Estevão* (*Alfama*) and *São Paulo* (*Cais do Sodré*), are *Santa Justa* and *Socorro* (*Mouraria*). Not only do they show considerable population growth rates in the last decade but also, they are contiguous to the chosen declining neighbourhoods. This was considered an advantage since the urban typologies are very similar, as well as the socio-economic character of the neighbourhoods. One difference might be the percentage of green spaces that are higher in most of the neighbourhoods that have recovered population in the last decade, which is, *per se,* an interesting observation. However, during data collection, the neighbourhood of *Santa Justa* ended being a non-feasible case study, because although it has gained population, it had lost so much during the previous decades that the community is practically non-existent. The opposite situation was found in *Socorro* (*Mouraria*), a very traditional working-class neighbourhood now going through a process of profound rehabilitation and the incorporation of younger generations. In fact, the process of gentrification in *Socorro/Mouraria* seems to be achieving a healthy multicultural and inter-generational vibrancy, with clubs and civic institutions popping up, such as the association *Renovar a Mouraria*[35].

Although the only council in Lisbon's Metropolitan Area experiencing a severe decline in its population size is Lisbon Council, it still is, according to the report *Habitação e Mercado Imobiliário na Área Metropolitana de Lisboa* (The Housing and Real Estate Market of the Metropolitan Area of Lisbon) (Ferreira et al. 2005), one of the most sought after area for residential purposes. A survey undertaken by the city council in 2003, asking potential house-buyers where their ideal house would be, demonstrated that 25% of them considered the city centre as their ideal location. The only two choices with higher preference rates were the "countryside" (35%) and locations "near the beach"[36] (30%). This demand determines the high housing/rent prices in the city centre thus precluding the middle classes from the possibility of living there[37].

The current economic crisis is certainly going to be a key factor for the future of the housing stock in Lisbon and in numerous cities across Europe. When the number of foreclosures in the Portuguese capital was compared in January 2011 and in January 2012, there was a detectable a rise of 75% (Anon, 2012c). This trend stabilized only because mortgage contracts were made easier, with families going through unemployment problems, for example. Otherwise, banks

[35] More information at: www.renovaramouraria.pt

[36] *Cascais*, an outer district near the sea, is one of the most expensive areas to buy house in the AML.

[37] Either the lower classes with old rents or the better off ones live can afford to live in the city centre. Within Lisbon's Council district, the redeveloped area of *Parque das Nações*, built for the International Exhibition Expo'98, is the most expensive one.

would have risked even more, becoming the owners of a massive housing asset with no buyers in sight.

The most recent report of the Portuguese Dwelling and Urban Rehabilitation Institute (Guerra & Mateus 2008) clearly shows a reduction in the intention to increase public investment in the sector. The majority of the investment is aimed at providing incentives for private initiatives. The problem is, however, that since the country is immersed in a strong financial crisis, the private sector does not have the capacity to fulfill this role. In fact, since 2006, Portugal has witnessed the loss of about 225,000 inhabitants (www.ine.pt), and an escalation in the unemployment rate, from about 8% in 2008 to almost 17% in 2012[38] (Faria, 2013).

7.3.1 Genoa

In Genoa, 1971-81 was also the decade that first witnessed a population contraction at city level. Data exist since 1861 and show that 1965 was the year of maximum population size. From then on, the general population trend has declined constantly, even if in some years, like 2005 and 2013, there have been some population gains (Arvati & Molettieri, 2007) (Figure.17).

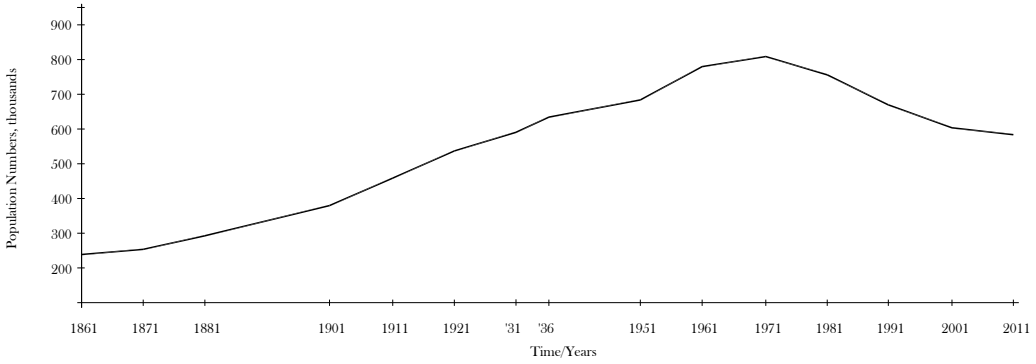

Figure 17. Census data of the resident population in Genoa from 1861 to 2011. Data from ISTAT – Statistics from Italy and graphic elaboration adapted from "Tuttitalia" – www.tuttitalia.it/liguria/45-genova/statistiche/censimenti-popolazione/., Illust.

Until the 1970s, the general population trend in Genoa was of strong gains, mainly due to the migration of workers from southern Italian regions, to increase the port and ship-making workforces. The industrial history of Genoa is particularly rich in the Italian context, with companies making up part of what is known as the *triangolo industrial*, i.e., the industrial triangle, consisting of Milan, Turin and Genoa (Arvati & Molettieri, 2007). This industrial strength had already started at the end of the 19th century, which meant it benefited, primarily, a growing

[38] Lisbon, Madeira and the Algarve are the most affected areas (Faria, 2013).

middle class. In 1825, the city grew towards the western hills according to a plan of Carlo Barabino, Italian architect and planner. This area which became occupied by wealthier people, whereas the poor continued to live in the city centre. Also, in 1825, the city made its first annexation of lands for further expansion, this time in an eastern direction – to the low valley of the *Bisagno* river – where some farms, fishermen's villages and the *villas* of wealthy families were located. After the First World War, in 1926, the city was unified into 'Greater Genoa' to encompass the new "conquered" territories and future ones, but still today, this is a polycentric city. However, it is after the Second World War that the city witnesses its greatest demographic boom and urban sprawl. During the war, one third of the city's buildings were destroyed and the immigrant fluxes aggravated even more the need for housing stock. The city's expansion of the 1950s was drastic and not guided by a strategic plan. Speculation was the driving force and ruler of urban planning, therefore, many urban actions of that time are still problematic for the city today as, for example, the infilling of parts of the valleys of the *Polcevera* and *Bisagno* rivers.

The sixties were a time of industrial decline, with the loss of more than 11.000 jobs, and from then on, the economic and demographic decline of the city has persisted (Lagomarsino, 2008).

In Genoa, the administrative divisions are considerably broader in terms of territorial size and population than the ones evident in Lisbon at the beginning of this research. Although in 2013 there was an administrative restructuration in Lisbon, with the agglutination of several civil parishes and a considerable territorial widening, they were not considered in this study.

The project "Genova Urban Lab", released in 2011 population change data for the decade 2001-2011. Of the nine civil parishes that compose the city, only three gained more population during that period – *Centro Est*; *Centro Ovest*; and *Val Polcevera* – and of the six that declined, those with sharper percentage losses included *Bassa Val Bisagno* and *Medio Ponente*, the two areas chosen to be part of this study. In selecting the cases that best fitted this research, previous data were also taken into account, namely, statistical data of city population change since 1981 by civil parish and also, by smaller administrative areas named *circoscrizione*. From these data, a greater and longer declining trend was detected in the civil parishes of *Bassa Val Bisagno* and *Medio Ponente*, reinforcing the option of focusing on those two areas of the city for this research.

As for the comparative growing neighbourhoods, from the three growing civil parishes, *Centro Est* was excluded as a sub-case due to a sharper population decline in the period 1971-2001 when compared with *Centro Ovest* and *Val Polcevera*. The table below summarises the most important information relevant to the sub-case studies selected for inclusion in this project (Figure 18).

Civil Parishes (LX)	*Population (inhab)*	*Pop. density (inhab/Km2)*	*Population change 2001-2011 (%)*	*Senior rate* (%)*	*Green spaces** (m2/inhab)*	*Building deterioration ***(%)*	*Inhabitants > 6 yo, with none or basic qualifications** ** (%)*
Bassa Val Bisagı	76274,00	103,53	-3,40	28,70	4,16	NA	31,50
Medio Ponente	61117,00	308,44	-0,70	26,50	2,28	NA	36,30
Centro Ovest	67870,00	71,40	4,20	25,60	1,45	NA	32,10
Val Polcevera	62493,00	532,40	3,40	14,50	0,83	NA	38,50

* Inhabitants older than 65 years old.

** Data from www.comune.genova.it/ and

*** There was no information found regarding this point of analysis. Note: NA – Information not available.

**** The only information found regarding this point of analysis encompasses all the children and youngsters still in the education system. It is therefore an overestimated.

Figure 18. Some urban and social indicators for the four civil parishes chosen as case studies in Genoa

Also, all seven[39] neighbourhoods chosen, both in Lisbon and Genoa do have different urban fabrics and scales, however, all of them show a high level of urban density (Figure 19). The images are clear in showing that the urban fabric in the studied neighbourhoods in Lisbon are more compact than the ones in Genoa.

Also, as mentioned in point 7.2, there has been a noticeable decrease in the number of residents per household in both Lisbon and Genoa. When looking at this indicator, according to the different neighbourhoods selected as case studies across the two cities, a slight variation is evident (European Environmental Agency, 2009) where we can detect that in Genoa the number of inhabitants per household is still slightly higher (Figure 20).

[39] As already mentioned, there were initially eight sub-cases, four per city. However, during data collection in Lisbon, in the neighbourhood of *Santa Justa*, it was not possible to find residents willing to participate in the questionnaires. Therefore, the use of this sub-case was not in fact achieved. To overcome this situation, the sample from the civil parish of Socorro was doubled in order to replace *Santa Justa's* one.

Figure 19. Figure-ground image of the urban fabrics of the seven neighbourhoods where data were collected.

Average number of inhabitants per household	
São Paulo (Lx)	1,34
Santo Estevão (Lx)	0,96
Socorro (Lx)	1,40
Bassa Val Bisagno (Ge)	1,94
Medio Ponente (Ge)	2,03
Centro Ovest (Ge)	1,96
Val Polcevera (Ge)	2,03

Figure 20. Average number of inhabitants per household in each of the neighbourhoods studied. Data from the European Environmental Agency (2009), and Statistics Portugal.

7.4 Qualitative Approaches

7.4.1 Expert Interviews

As discussed previously, the use of interviews with experts in the fields of urban development, city economics and urban policies, or simply with urban activists, aimed not only to understand better the present contexts of both case studies – Genoa and Lisbon – but also, to understand their general opinions as to the future changes that they foresee likely being made to urban fabrics.

Each interview was prepared and conducted independently, in accordance with the interviewee's expertise. The experts chosen to take part in this project were mainly political and social actors in the neighbourhoods under analysis and political experts in urban dynamics and rehabilitation. Although an interview guide was formulated for each interview, the questions weren't sequentially predetermined, and some spontaneous questions were added to the conversation during it, when appropriate. Moreover, all the questions were open-ended, meaning that the interviewee had the possibility to explore the topic freely and to bring in related topics into the discussion. Therefore the interviews should be considered to be unstructured although there was an appropriate level of preparation to each session (DiCicco-Bloom & Crabtree, 2006). However, there were some common questions addressed to most stakeholders. This was intended to test how different actors in city life perceived the causes of depopulation and the scenario of demolitions or adjustments to the urban fabric. Although the same wording was not always used, one of the common questions was: "Do you agree that, in some urban areas, demolitions will be unavoidable as a strategy?"[40]. The answers to this question are particularly relevant due to the link between depopulation and demolitions in so many shrinking cities. According to Jacobs (1960b), prosperous societies tend to be innovative and conservative at the same time, by which she means that these societies tend to keep traditions, constructions, buildings and technological tools as reservoirs of knowledge. Declining societies not only lose people, they also tend to lose these reservoirs of knowledge. Declining cities lose businesses, skilled professionals, and they also tend to lose built patrimony, among other types of patrimony (Jacobs, 2005). Demolitions in a shrinking city might just be an unavoidable necessity of re-adapting to a smaller reality, and

[40] When it did not seem appropriate, the question was not asked, as with the case of the priest in Lisbon.

readjusting to the costs of maintaining the basic functions of that same city, however, some cities show astonishing resilience to population fluctuations. Therefore, it is particularly interesting to understand how different stakeholders in Genoa and Lisbon regard the urban realities in which they work and live, and what is their awareness/acceptance, or reluctance, relative to the need, or urgency, to undertake demolitions or, conversely, conservative actions. In Lisbon, the interviews were conducted in Portuguese and in Genoa, in Italian and/or English.

The interviews were sound recorded and transcribed, with the agreement of the participants, but they were not coded in detail, since this was a preliminary study where the main interest was to gain a broad sense of the different issues raised by the various stakeholders. In cases like this one, even transcription of the interviews might not be necessary (King, et al., 2010).

In Lisbon, seven interviews took place, and in Genoa, five. The list below presents the different interviewees for each city. The names are covered since there is an anonymity agreement:

Lisbon:

1. Urban Experts and Political Agents

. TC / *Programa Habitacional de Lisboa* (Lisbon's Council Housing Programme)

. MLP / President of the Civil Parish of *Santo Estevão*/

. FPD / President of the Civil Parish of *São Paulo*/

2. Community Projects:

. IC / Horta do Monte project[41]

. LA / *A Linha* project[42]

3. Housing Market Experts

. JCN, PhD, Universidade Técnica de Lisboa / Expert in real estate issues

4. Others

PBX, Priest / Responsible for one of the depopulating parishes in Lisbon.

Genoa:

1. Urban Experts and Political Agents

. AF and PB / *Urban Lab* project (Genova City Council)

[41] *Horta do Monte* is a community allotment based on the principles of permaculture. During the interview it was located in the neighbourhood of *Graça*, which borders with *Santo Estevão*, but after being expelled from that space by the Council, the project is now using another lot.

[42] *A linha* is a project of the office 'urban nomads' based in Lisbon. The main purpose of the project was to rekindle the use of the public spaces of Alfama by making temporary interventions in the space with the collaboration of residents. More information at: http://atelierurbannomads.org/2013/06/04/a-linha/

. MF/ President of the Civil Parish of *Bassa Val Bisagno*

. GS/ President of the Civil Parish of *Medio Ponente*

2. Community Projects:

. PC, arch, Universitá di Genova/ *Genova meno uno per cento*[43] project (Baukuh office)

. NL, arch, and AP, photographer/ *Genova meno uno per cento* project (Gosplan office)

7.4.2 Focus Groups

The use of focus groups in this research aims to better understand: how depopulation affects people in the case-study neighbourhoods, namely, what aspects of daily life are reported as more or less disruptive (people's likes & dislikes), if residents experience it as strong disruption or if there is also a sense of opportunity in depopulation; and finally, if depopulation affects, negatively, residents' sense of place attachment and therefore, their motivation for actions of stewardship.

Seamon (2014), Professor of Environment-Behavior and Place Studies, argues that, because of its phenomenological character, the perfect situation for analysis of place attachment is a post-disaster context where the reactions of residents can inform the real meaning of place for those inhabitants. Although depopulation cannot be considered a one-off disaster, as Seamon describes, it is undoubtedly a profound disruption in a place and in a community. In the words of Allweil (2007), architectural historian, it can work like a "slow motion Katrina". Depopulation, therefore, is here considered a "close neighbour" of the perfect testing context for place attachment levels in a community. The measurement of place attachment varies widely according to different authors. Some use quantitative measurements, namely, Likert scales or questionnaires, while others defend a qualitative approach to obtain a deeper understanding of place attachment levels, and subtleties, in a determined community, like in-depth interviews (Hernandéz, 2014). In this study, a qualitative approach based on guided group discussions has been followed, with the use of the focus group technique.

Focus group are:

> "…group discussions in which participants focus collectively on a topic selected by the researcher and presented to them in the form of a film, a collection of advertisements, a vignette to discuss, a "game" to play, or simply a particular set of questions." (Wilkinson, 1999, p.222)

[43] *Genova meno uno per cento* (GE-1%) is an independent project that brought together five architectural offices in Genoa to discuss and draw the possibility of surgical demolitions in the city of Genoa. The aim of the project is to test possible solutions to improve citizens' quality of life, by reclaiming qualified open and green spaces, or improving walkability or connectivity, or adding parking space. These are some of the examples that the project tested. The five offices that took part in the GE1-% were Baukuh, Gosplan, Obr, Sp10studio and Una2. More information at: www.genovamenounopercento.it/manifesto/ or https://it-it.facebook.com/pages/Genova-meno-uno-per-cento/

and they are useful to obtain an in-depth understanding of a specific situation, theme, product, context, etc. When compared with in-depth interviews, focus groups permit different perspectives to be gathered quite quickly, and trigger the discussion of issues that otherwise would not be mentioned, and allow consensual or controversial issues to be identified. Good practice guidelines for focus groups and interviews were taken into consideration in this research, namely, those suggested by Morais (2010), a marketer, and Forester (2009), an experienced urban planner in interviewing residents: (1) to give time to the interview in order not to impart any sense of haste, on the part of the interviewer, to the participants (tea and cakes after the interviews are important moments of data collection and confidence building); (2) not to practise a prescribed fixed interview that is blind to the input of the interviewees; (3) to try to understand beyond words, look for clues and mind pictures that might be presented by the residents; (4) to recognise that emotions can be as informative as words, and sometimes more so; (5) to ask for details (the "why's" and "how's") in order to go beyond rehearsed phrases and fixed ideas; (6) to free the interviewees from the burden of "wrong" answers, by explaining to them that there is no such thing in that context, and that the researcher is not a jury or a referee; (7) to introduce the session, by explaining what is going to happen, and conclude, by summarising and thanking the participants.

Three discussion groups were held in each neighbourhood, made up of the following age groups: 25-45 year olds; 45-65 year olds; and over 65 year olds. The cut-off ages were chosen in line with the census age groups, but instead, two different census groups were merged at a time. The below age 25 group was disregarded from the study since the EU15[44] average age to leave the parental home is, approximately, 24, and in Portugal and Italy, the countries that were studied, those averages rise to 28, and 29 respectively. For this research, living away from the parental home was an important criterion since the deliberate action of choosing a dwelling place permits respondents to be more aware of their preferences. The cut-off age of 65 was established because, not only it is the cut-off age in the census, but also, it is the average retirement age in many of the OECD countries (in Portugal, the retirement age is 65 and in Italy, it is slightly higher, i.e., 69/70).

The participants were invited through the help of the local authorities, namely, through the staff of the civil parishes since there were no special bonds to these communities in the beginning of the study. This fact encompasses some limitations to the study since there is the acknowledgement that there might be some biased selection of the participants. Moreover,

[44] Following the OECD criterion, the term 'EU15' refers to the members of the European Union prior to 1 May 2004. These countries were: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom. (In OECD, Main Economic Indicators, monthly, OECD, Paris. Retrieved at: http://stats.oecd.org/glossary/detail.asp?ID=6805)

particularly in Genoa, there was a dominance of male participants, even after strong efforts to recruit female participants. Each discussion had an average of five participants.

The discussions were based on a series of open-ended questions regarding the residential neighbourhood's qualities and public/open/green spaces. The aim was to obtain overall information about the neighbourhood without restricting the conversation to one topic. The main questions presented to the residents were:

(1) What is it like to live in this neighbourhood these days?

(2) What do you like most? Why do you like it that much?

(3) What do you like least? Why don't you like it?

(4) What would you change in this neighbourhood if you could?

(5) What open public spaces of this neighbourhood do you use most? Why?

(6) Are the spaces here agreeable? Do they respond to your needs?

(7) What is missing in this neighbourhood?

Since the focus group methodology implies a colloquial and interactive discussion, the questions were not always asked in the order shown above, nor were all of them presented since sometimes, participants answered unformulated questions naturally. When appropriate, other questions were added according to the themes that arose in the discussion and the inputs of participants. Also, there was an intended omission regarding anything that was related to depopulation. All references to this topic or related ones were totally spontaneous.

The study was carried out in four depopulating neighbourhoods, two in Lisbon (*Santo Estevão* and *São Paulo*), and two in Genoa (*Medio Ponente* and *Bassa Val Bisagno*). The case-study choices were based on statistical data, namely, the neighbourhoods with higher negative population trends, with higher vacancy rates, and with fewer open spaces available (see point 7.3). The discussions in Lisbon were conducted in Portuguese and in Genoa, in Italian.

Each discussion was sound recorded and subsequently transcribed, again with the agreement of the participants, using the research software *nvivo*, designed for qualitative analyses such as interviews and focus groups. The data were thematically analysed and divided into positive and negative mentions, i.e., there was a distinction between the themes that were mentioned as advantageous for those living in the neighbourhoods, or, conversely, mainly mentioned as a flaw, or a disadvantage of the neighbourhood in question. In this study, the definition of theme follows that of King and Horrocks, both Professors in Applied Psycology and experts in qualitative research (2010):

> "Themes are recurrent and distinctive features of participants' accounts, characterising particular perceptions and/or experiences, which the researcher sees as relevant to the research question." (King & Horrocks 2010, p.150)

This coding process, i.e., the classification process, had the following four main stages: (1) transcription; (2) reading, and re-reading, of the transcriptions; (3) elaboration of a first list of

themes; (3) coding of the themes in *nvivo*, either as positive or negative (in this phase there was a simultaneous process of testing the first list of themes and, when considered necessary, some themes were eliminated and others added); (4) the re-grouping of the themes in wider main issues that can help construct a broader picture of the situation. An even deeper look into the thematic structure, corresponding to a fifth analysis phase, allowed the identification of six relevant thematic groups to this research (point 8.2). The cyclical deepening of the categorisation of codes and themes is a typical and recommended approach to a qualitative research process (Saldana, 2009; Braun & Clarke, 2006). In the words of Saldana,

> "…coding is a cyclical act. Rarely is the first cycle of coding data perfectly attempted. The second cycle (and possibly the third and fourth, and so on) of recoding further manages, filters, highlights, and focuses the salient features of the qualitative data record for generating categories, themes, and concepts, grasping meaning, and/or building theory." (Saldana, 2009, p.8)

This is a typical inductive approach to theme analysis, where the themes are analysed semantically such as it is described by Braun & Clarke (2006), i.e., the themes are data-driven instead of theoretically or deductive-driven; and there is no attempt to go deeper into the hidden meanings of participants' interventions.

7.5 Conjoint Analysis

Conjoint analysis is a method developed to study preferences based on hypothetical scenarios that take into consideration the principles of utility theory/prospect theory and of heuristics. Researchers constructed this research method in the 1970s, and Sawtooth Ltd. is the leading company in the development and application of a software tool for research use. Based on mathematical principals, conjoint analysis compares "arbitrary combinations of 'quantities' of a single specified kind" (Luce & Tukey, 1964, p.1), i.e., it is a tool designed to calculate and quantify the relevance of different qualities, or attributes, of services, objects, products, etc, when within a combined agglomeration, as it is presented in real life. It then produces a relative hierarchy of the importance of factors being tested in any given scenario.

Luce, a psychologist, and Tukey, a statistician, first developed conjoint analysis in 1964. When Green and Rao (1971), and Johnson (1974), introduced these new ideas into marketing research, at the beginning of the 1970's, this tool became extremely popular, particularly in the 1980s and 1990s. Its popularity is explained by the fact that conjoint analysis presents participants with a scenario closer to real life (Sattler & Hensel-Borner, 2003) and therefore, can draw greater relevant information from respondents' answers than Likert scales, or other self-explicated methods:

> "…rather than ask respondents to react to generic terms like 'battery life', we ask them to react to specific, realistic product specifications. The results are both meaningful and managerially actionable (Orme, 2010b)

It helps to demystify a 'complex' entity/reality and better understand the attributes or components that are more or less important for trade-offs between different concepts or products.

Moreover, conjoint analysis has:

> "A greater chance of detecting real importance weights"
> "Less chance of receiving only socially accepted responses"
> "Greater range sensitivity"
> "Better chance of detecting better potential nonlinearity in the partworth function"
> "Less likelihood of double-counting" (Sattler, 2003, p.69)

However, according to Gustafsson, a marketing expert,

> "Good conjoint research is (…) most likely to occur if the process is hypothesis driven." (Gustafsson et al., 2000, p.9).

Therefore, the outputs of a conjoint study conducted with no theoretical grounding, or a well-developed hypothesis, can become less relevant or not applicable.

Besides marketing, this method has been used in many different fields like health, education and planning. It is now recommended by the UK's National Institute for Clinical Excellence as a way to better understand patients' preferences regarding different treatment options (Aspinall et al., 2007; Ryan, 2004). And it has also been used in the fields of environmental psychology and landscape architecture, namely, by Peter Aspinall (Aspinall, 2010; Aspinall et al., 2010; Aspinall et al., 2007; Alves et al., 2008). Aspinall's studies have brought to light the attributes that can be particularly relevant for an increased use of green spaces/parks by the elderly and citizens with impairments, but also, the attributes that weight more when buying a house, for example. Regarding this last mentioned study, Aspinall's findings (Aspinall, 2010) suggest that more important than the internal characteristics of a house, its location within the city is the most important attribute when buying a property. Also, when focusing on the characteristics of parks, the findings of Aspinall et al., (2010) suggest that being free of nuisance, the presence of facilities (cafés, toilets) and that of trees and plants were the most important attributes for their use by elderly citizens. Conjoint analysis has also been used in EU technical reports like the Plurel project to study people's preferences regarding their living conditions in different urban and peri-urban European urban contexts. One of the outputs of this research indicates that the attribute security is the leading priority when assessing neighbourhoods' quality of life (Haase, et al., 2013).

The present study follows on these studies, exploring preferences regarding neighbourhoods. Participants were asked to answer the following question: "In which of the neighbourhoods presented would you prefer to live?" by choosing one hypothetical scenario of a neighbourhood against two others.

But how does conjoint analysis work? A simple example might help to clarify the question, for example, by focusing on the criteria that influence someone's choice of place to study over another one – a key decision when undertaking a PhD thesis. Intuitively, there are numerous factors that have to be taken into consideration, ranging from lighting, the temperature of the room, quietness, proximity to external resources (bibliography, supervisors, seminars), or just simply proximity to a place to have a cup of tea, etc. Each criterion is considered to be an **attribute** in conjoint analysis. After considering each potentially meaningful attribute, it is necessary to understand the different **levels** at which an attribute can be presented. For example, regarding the attribute 'proximity to bibliographic resources', it would be possible to study in a central library – maximum proximity – or in a building that has a smaller library – medium proximity – or at home, where there would be less access to bibliographic resources like books (minimum proximity). Each of these three hypotheses is considered to be a different level within the attribute. The same process is followed for all the other attributes and a matrix of scenarios is developed that equals the number of possible combinations between different levels of attributes (Figure 21).

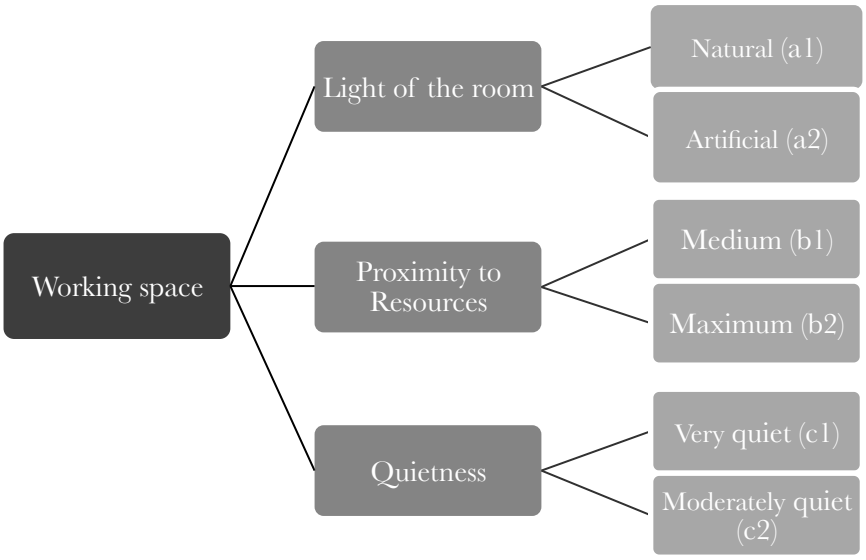

Figure 21. "Where am I going to work today?" An example of a set of attributes and levels of a hypothetical conjoint study focused on study environments (possible combinations: 2^3=8 (C1 = a1,b2,c1/C2 = a1,b1,c1/C3 = a1,b1,c2/(...)).

The attributes chosen for a study, and the levels in each attribute, are key decisions relative to the rigour of the conjoint analysis since if an important attribute is missing, then your results might be less reliable.

Despite the popularity of conjoint analysis, some studies postulate that when the object/product/service being analysed is too complex, i.e., when there is the need to test a large number of different attributes, there is no advantage in using conjoint analysis, when compared

to self-explicated methods (SEM). The SEMs are compositional approaches, meaning that the data to test the importance of an attribute/quality are gathered by questioning respondents directly about the attributes in interviews or questionnaires (Sambandam, n.d.). Product development is only achieved afterwards and is based on the data collected. A conjoint analysis, however, is inversely structured, i.e., the relevant attributes are artificially combined to form a set of potential products (scenarios) and these are presented to the respondents in sets of two, three or four **concepts**. From respondent's choices, it is possible to calculate the relative importance of each attribute to the overall attributes of the object/product/service (Sambandam n.d.) and the utility of each level of attribute. Therefore, conjoint analysis is considered a decompositional approach.

However, the levels of decompositionality differ according with different sub/methodologies within conjoint have been developed over time. The first was termed Adaptive Conjoint – ACB – , based on the rankings and ratings of the different attributes, therefore closer to a compositional approach. The second was Choice Based Conjoint - CBC – and it is still the most popular version of conjoint analysis is mostly based in choices of predetermined scenarios, therefore, it is profoundly decompositional. Lastly, Adaptive Choice Based Conjoint – ACBC – combines the strengths of the two approaches: compositional and decompositional. Although CBC is still the most used method, ACBC has numerous advantages, namely: (1) permitting the use of more than 5 attributes; (2) identifying the non-compensatory attributes of an object/service/space, i.e., the attributes that a respondent is not willing to trade off with any other; (3) reaching significant results with smaller samples, which is particularly advantageous where there are limitations of time and resources; (4) appearing to be more realistic and more engaging to participants; (5) and by providing more accurate predictions than CBC, since ACBC has two additional sections targeted at 'non compensatory' attributes, permitting deeper analysis of the remaining attributes (point 10.5.3) (Curry, 1996; Johnson & Orme, 2007; Orme & Johnson, 2008).

The comparative table, below, presents other differences between the three main models of conjoint analysis (Figure 22).

Conjoint Sub-Methods	**Tasks**	**Max. Nr. of Attributes**	**Computer vs. paper**	**Sample Size**	**Average timing**	**Money Tasks**
ACA	Rating & Ranking	**20**	Computer	**Small**	Short	-
CBC	**Choice Based**	3-	**Paper**	100+	Short	Good
ACBC	**Self-Explicated & Choice-Based**	**5+**	Computer	**Small**	10/15 min	Good

ACA (Adaptive Conjoint Analysis)

CBC (Choice Based Conjoint Analysis)

ACBC (Adaptive Choice Conjoint Analysis)

In bold: Preferred characteristics of the software for this study.

Figure 22. . Differences between conjoint sub-methods.

Based on these advantages, ACBC was chosen as the most appropriate conjoint analysis sub-methodology for this research project. The weak point regarding this decision, is the fact that ACBC is a computer-based questionnaire, since it adapts the questions to the participant, and the target population for this study is generically of a low educational background and generally, not skilled in this type of questionnaire. This weakness has thrown up some challenges, such that most questionnaires were witnessed, assisted, and mainly undertaken with assistance.

Sawtooth Software provided a grant for this research project, giving access to the following tools: (1). ACBC software licence; (2). CiW (general interviewing questions) software licence; (3). SMRT: simulation software; (4). discounted survey hosting rate; (5). free access to Sawtooth Software online simulator tools.

7.5.1 Conjoint outputs: Utility Theory and Prospect Theory

Utility theory is the branch of economic research concerned with the quantification of preferences, traditionally used to gain a better understanding of the degrees of willingness to pay for a determined good/product/service. It is relevant to discuss it since most outputs of conjoint analysis are based in utility values.

In the words of (Fishburn, 1986), one of the first leading experts in the theory of decision-making (1968):

> "utility theory is concerned with people's choices and decisions. It is concerned also with people's preferences and with judgments of preferability,' worth, value, goodness or any of a number of similar concepts" (Fishburn, 1986, p. 335)

The calculation of the utility of a determined good is always based in a binary relation of preference, i.e., a comparative preference between two objects/goods/money gains, at one time. This means that the utility of a product is always a relational figure instead of an absolute valorisation. For centuries, economists thought that people's decisions were coherent and rational, meaning that people would naturally assess probabilities of gains and losses in absolute terms, in order to make judgements and decisions. However, in the 18th century, there is the sense that judgements/preferences, and the corresponding utility values, are not only relational, but also contextual. The work of the Swiss scientist Daniel Bernoulli in 1738, demonstrated that

> "people's choices are based not on dollar values but on the psychological values of outcomes, their utilities." (Kahneman 2011, p.273).

In Bernoulli's theory, for example, increasing your wealth from 2 to 4 million pounds has the same utility value as increasing your wealth from 5 to 8 million pounds. This means that the wealthier someone is, the smaller values of utility he/she shows for the same, or higher, absolute increments in wealth gains. Bernoulli's studies also revealed a natural general tendency for risk

aversion, meaning that when someone is faced with a secure smaller gain and a probable higher gain, people tend to opt for the secure smaller gain. This aversion is, however, stronger in less wealthy people, meaning that richer people, because they value gains and losses less, are more willing to gamble, take higher risks, or living without insurance while insuring others, for example. However, Bernoulli's theory did not take into consideration the values of change, meaning that it did not consider the exact starting point of each individual's 'wealth' position (Kahneman, 2011). The experiments of Daniel Kahneman and Amos Traversk were the stepping stone to a new and more refined theory on utilities: prospect theory. Prospect theory aimed not only to address the way that people make choices in real life, not as economists predicted, but also, to address the problem of the effect of the starting point for a utility value. Just like Bernoulli, they assumed that,

> "utility is a logarithmic function of wealth" (Kahneman 2011, p.273)

and developed a new framework that considered both gains and losses.

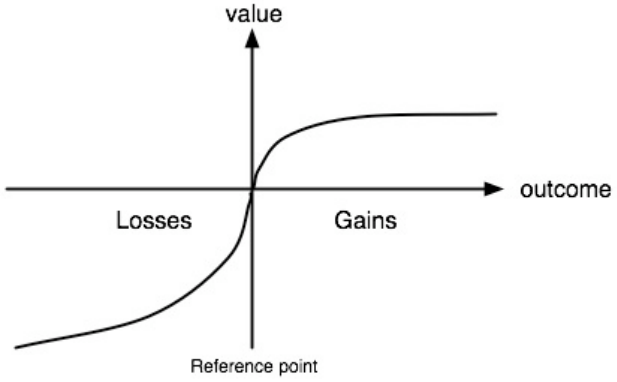

Figure 23. Graphical view of the Prospect Theory

The graph above shows a nearly symmetrical S-shape (Figure 23), meaning that gains and losses near the zero point have a stronger psychological value, and as the losses and gains are further from the zero point, their psychological effect – their utility value – becomes less evident. Although the graph is almost symmetrical, in fact, the left side of the graph shows a steeper curve. This is the graphical result of the risk aversion principle, meaning that a small loss near the zero point has a greater psychological value, and therefore, a greater utility value, when compared with a small gain near the zero point. In fact, according to prospect theory, losses near the zero weight about twice as much as gains. The same principles can be, and have been, used extensively, not only for money, but also for numerous other situations or products. As Aspinall (2010) says:

> "all our perceptions are, of their nature, both relative and selective. Information is not perceived, remembered or interpreted in

> isolation, but in the light of past experience and the context in which it occurs". (Aspinall, 2010, p.182)

Armed with this background information, one of the first questions this research added to the conjoint study was to ask participants to describe their own neighbourhood at the present moment, so that there could be an acknowledgement of the starting point for each participant.

Regarding the outputs of conjoint analysis when using Sawtooth software, they are the following:

1. **Part worth utilities** are interval relative data, made to sum zero, that indicate the valuation given to each level of an attribute when all levels of other attributes are made equal. However, utilities are interval data and therefore, do not permit ratio operations, meaning, that if you have a level A with a part worth utility of 0.3, and a level B with a part worth utility of 0.6, you cannot conclude that level B is two times more preferable to level A. Nor you can compare levels of different attributes between each other. Because utilities are relative figures, and complex for non-researchers to understand, Sawtooth Ltd has developed a tool to transform this data into 'shares of preferences'. Shares of preferences do have ratio properties so they allow a more detailed comparative analysis of the different levels of an attribute (Orme 2010a).

2. **Counts**, on the other hand, can be very useful, since they permit ratio operations. They indicate the number of times an attribute level was chosen in relation to the number of times it was available to choose. In this case, you could say that level B is two times more preferable than level A (example of point 1.), but you cannot compare levels of different attributes (Orme, 2010a).

3. The **relative importance** of an attribute is the range of the utility values of the different levels of the one same attribute and it indicates the relative importance of each attribute in the choices of a particular respondent. The average of the importance of the different attributes across the sample indicates the relative importance of the different attributes throughout the sample. The importance values always add up to 100 and therefore, it is crucial to be aware that these are always relative figures, and that the choice of the attributes, and of its levels, is crucial to the final outputs of a particular study. A high importance means that there is a wide difference between the level of an attribute that is preferred more *versus* its least preferred level, meaning that respondents have strong views regarding a particular variation of an attribute, i.e., they prefer one level when compared to another[45]. This means that the first attribute is more important (Orme, 2010a).

[45] Levels of attributes can be described in an ordered scale of generally accepted positive and negative levels as, for example, when you describe the low and high quality of green spaces. But it can also be described in a non-ordered scale as, for example, "squares and small gardens" vs "big public parks".

7.5.2 Choice Making: Heuristics

Numerous psychology studies have been focusing on the principles that rule perception, choice making and/or problem solving, a field of knowledge designated as heuristics. Especially relevant is the work developed by the Nobel Prize winner Daniel Kahneman and his colleague, Amos Tversky, with the development of the principles that influence behaviour, perception and choice-making. Some of these basic principles have been incorporated into the structural function of conjoint analysis, and consequently, in the Sawtooth tool.

(1) Priming Effect. This principle states that perception and choice making are shaped by minor events that you are mostly unaware of. Professor Daniel Kahneman could demonstrate this effect in numerous experiments. In one of them, participants were asked to do a computer-based task where half the sample was presented with screensavers showing dollar notes and the rest of the sample was presented with other types of screensavers. The task, in itself, was irrelevant to the experiment but during it, someone close to the respondent dropped a pen, a staged event performed by a member of the research team. Surprisingly, participants with the money screensaver had a significant lower rate of helping behaviour than other respondents, showing that,

> "the idea of money primes individualism" (Kahneman, 2011, p.56)

The results of another of Kahneman's experiments are as striking as the one described above, but more relevant to the present research. It took place in a university office kitchen where staff members usually contributed to an 'honesty box' to pay for their tea and coffee. Next to the box was a written list of suggested prices and an image was added to it. The experiment lasted for ten weeks and each week, a different image was presented. When assessing participants' contributions, the results were striking. When the week's image was, for example, a pair of demanding eyes, the contributions were significantly higher then when the image was of a flowery field. In that case, the contributions diminished to less than half. The relevance of these findings for social psychology researchers was crucial to explaining the power of the external environment, even through subtle variant unconscious conditions, in people's responses, behaviour, task performance, etc. The effects on people's attitude and behaviour can be great or small, depending on the research context, but an awareness and understanding of the 'priming effect' was a key breakthrough for the field of social sciences and other related fields that study decision-making processes. Its power can help researchers in social sciences, and other fields, to minimise irrelevant information from particular data-collection instruments, and, in this way, target the tools more appropriately to specific tests. In the case of this doctoral study, the use, or not, of images in the questionnaire was a considered decision, and is explored in point 10.5.2).

(2) Anchoring Effect. When answering a question, making a decision or judging a situation, any number that is part of the information you have to consider influences your

behaviour. For example, the 'open' question, 'how old was Ghandi when he died?' differs markedly from 'was Ghandi more or less than 144 years old when he died?' The mere existence of a reference number significantly affects responses since there is an unconscious movement of approximation to that number. This is called the anchoring effect. When Daniel Kahneman ran the experiment, the respondents were asked the second question, and the average responses were much higher than the ones of the control group, where respondents were asked the first question. This effect can have significant impacts in everyday life. For example, when in a business environment, you may benefit from starting off a negotiation with an upfront value on the table. This way you are probably already significantly influencing the final agreement. This bargaining principle has been used for centuries in market places throughout the world, where the whole process triggers your less reflective mode of action. Only by activating a higher cognitive alertness is it possible to avoid being influenced by it[46] (Kahneman, 2011). In a research context, real scales can influence participants' responses dramatically, therefore, it is advisable, in an experiment context, to be as generic as possible in the presentation of scales. In this particular research, all scaled attributes had attached to them 'low, medium, high' types of scales. Each respondent brings to the experiment his or her own perception of that scale.

(3) Preference Reversal Effect: The preference reversal principle indicates that people are not always coherent in their choices. For example, a participant that prefers A to B, and B to C, would rationally prefer A to C. However, numerous tests have proven that this is not always true, since people are sometimes inconsistent in their choices. Therefore, if you want to test preference, it is useful to ask repeated equivalent questions in order to test if there is a constant pattern of preference. Fortunately, Sawtooth Ltd. has already taken this fact into account when designing Adaptive Conjoint Analysis, permitting a crosscheck and validation of the ranking preferences. Preference reversal is tackled by asking repeated questions and it tests coherence, however, sometimes, respondents can find this very tiresome.

(4) Risk Aversion Effect: This principle states that people normally avoid risk, meaning that they prefer to avoid losses than to risk gains. This aspect of human nature is very important to better understand some of the results of this study. Based on this effect it is recommended that the questions of a questionnaire should not be posed in the negative in order to avoid a biasing of the results towards a more conservative and protective answer. Moreover, this effect is also important to better understand some attributes that present very high importance due to a self-convincing effect.

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[46] To simplify this question, Daniel Kahneman (2011) used the nomenclature of 'system 1' and 'system 2'. The first is the more intuitive and quick reaction of our brain, and the second, the more alerted cognitive state.

7.5.3 Questionnaire Design

The questionnaire design was developed according to the research framework, focus groups' outputs, the pre-piloting/piloting period and Sawtooth Ltd's recommendations. Decisions about the mode of presentation – words vs. images – (point 7.5.3.1); the attributes to be included, chosen according with the framework of change and the results from the focus groups, (point 8.3.1); the clarity of the wording in each question; and the number of tasks that would permit both reliable results and a doable questionnaire (point 7.5.3.2), were crucial throughout the process of designing the questionnaire.

7.5.3.1 Scenario Presentation: Words vs. Images

One of the challenges of using conjoint analysis is to understand the best way to present the different scenarios to respondents. There are different theories regarding the use of images in these studies and their benefits. On the one hand, they simplify complex realities and permit a 'gestalt'[47] type of reaction, i.e., a simultaneous reading/perception of a reality. On the other, they can distract the respondent from a more judgmental assessment of the realities typical of the left hemisphere of the brain that achieves conclusions additively and sequentially (Paivio, 1991; Holbrook & Moore, 1981).

Allan Paivio, Emeritus Professor in the Department of Psychology at the University of Ontario, developed an important body of work regarding the semantic processing of words vs. images. After several experiments, Paivio developed a theoretical framework entitled 'dual coding theory' where he advocates that the speed of semantic processing of images and words depends more on the type of information being analysed, compared to the medium of presentation. This theory postulates a binary and independent, but correlated, system for words and images processing, respectively. According to it:

> "pictures tend to be perceived, stored, and processed simultaneously in an imagery system, while words are received, filed, and handled sequentially in an independent verbal system." (Holbrook & Moore, 1981, p.104).

The two systems easily communicate with each other and the information is constantly being translated from one to the other at high speed.

There are different reasons why some authors do not credit the dual coding approach but in this dissertation, we are only focusing on one of these reasons, i.e., the argument defended by the skeptics of dual coding theory that images are always quicker to process than words.

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[47] Gestalt theory, or the psychology of form, was first developed by the German-born Fritz Perls and advocates that the overall meaning of an object it is not equivalent to the meaning of its parts, since the overall meaning is greater than the sum of its parts.

According to the dual coding theory, the timings of responses to words or images really depend on the type of information and task presented. For example, the studies conducted by Te Linde and Paivio (1982) suggest that information about size is directly connected to the non-verbal system, whereas information about brightness and colour, on the contrary (and unpredictably), are related to the verbal system. Moreover, in another study conducted by Paivio in 1980 (Te Linde, 1982), when the task being proposed is more complex, the use of images actually slows down the time of response instead of accelerating it. Therefore, if some attributes or characteristics gain from being presented in an image format, others do not. The image presentation can even be counterproductive to the clarification of some realities. Images are better at representing intrinsically concrete realities, and words are normally more appropriate for abstract concepts, with wider scopes (McDougall & Pfeifer, 2012). An image, therefore, can have a bias effect on the feedback of numerous participants due to information irrelevant to the research question. Also, since the objects of investigation are hypothetical 'neighbourhoods', i.e., complex, multi-faced and multi-layered realities, and most attributes, except two, are not size oriented, the use of images might not be appropriate. Although there are no clear answers regarding the benefits of using images in conjoint studies, Professor Peter Aspinall (2010) in his study, "*On Environmental Preference: applying conjoint analysis to visiting parks and buying houses*", used images to present two of the attributes in the survey, and written descriptions to present the other two attributes. The results showed that the average importance of attributes presented through images was higher than the average importance of the attributes presented through written descriptions. Aspinall discusses how,

> "lighting, composition, people featured in the images and so on" (Aspinall, 2010, p. 192),

may influence the perception of the attributes. Vriens et al. (1998) and Holbrook (1981) had also reached the same conclusions, with the attributes tested via the images presenting as of higher relative importance. Moreover, Vriens also detected more variability in the responses presented with images, i.e., written descriptions produced more precise results.

There are two additional effects when using images that can be very powerful, and therefore, not easy to manipulate or control: (1) the compositional effect – in some (if not every) image, the composition of the elements within the image can be as, or even more, important than the individual components of the image, prompting or permitting some bias effect (Hook & Glaveanu, 2013); and (2) there are individual differences in humans' perception of images that seem to be relevant to the way in which we perceive and process images. Factors like age (Blazhenkova, et al, 2011), gender (Campos, 2013; Palermo, et al., 2008) and personality (McDougall & Pfeifer, 2012), all seem to be relevant to the way people perceive images. However, the use of images for populations with low educational levels seemed to aid easier task completion (Dufhues et al., 2003). The use of images, therefore, should be a considered choice between the

subject of the study, the technology and time available, the education level of the participants, and the skills of the team in creating clear and controlled images.

Regarding the subject of study, there were three attributes chosen to take part in the conjoint study that stem from the research framework. Those are: 'urban typology'; 'population density' and 'green spaces' typology' (more details in the attributes of the study in point 8.3.1). From these, there is one key attribute that could benefit from being presented in image form, precisely the one more related to size and form: urban typology (the type of building and size of street). During the first a pre-pilot phase of the conjoint study (point 7.5.3.2), all the attributes were presented only through words. This resulted in some people asking further questions regarding the attribute 'urban typology', such as: "how many storeys has a building described in the questionnaire as tall?"; "Is this street where we stand now a wide street?" However, with regard to all the other attributes, the written description did not trigger any further need for clarification. In the pilot study one schematic image was added, however, for the 60 participants in Genoa that replied to this questionnaire, the image did not seem to make much difference. Therefore, the images were removed from the study as a whole. This fact can also allow a more reliable comparison between attributes. During the rest of the data collection, participants seldom referred to the need for images that could better clarify the first attribute (i.e. 'urban typology'), reinforcing the researcher's decision to maintain only written descriptions in the specific case of this survey with these specific attributes.

7.5.3.2 Questions and Tasks: Pre-Pilot, Pilot and Final Questionnaire.

Adaptive Choice-Based Conjoint (ACBC) is structured around three main tasks: the 'build your own section', the 'screening' section' (that is accompanied by the sub-sections 'must-haves' and 'unacceptable'), and finally, the 'choice-based' section. That latter section is the core of this methodology, however, in the ACBC, the other two previous sections fed into the choice-based task, by permitting a pre-selection of the concepts/scenarios to be presented to each participant. The 'build your own' and screening tasks collect preliminary information about participants' basic preferences. In this way, the concepts shown in the choice-based task were meant to represent an almost ideal scenario for each participant, making the choice-based questions targeted, and therefore, more efficient in drawing information from each participant. This meant that the sample sizes could be smaller.

Other questions were added to the core questionnaire in order to obtain anonymous information about the participants (socio-economic data), to test if the ideal scenario would be close to the current residential neighbourhood and whether the attributes chosen were, or were not, the most relevant ones. Below, there is a detailed account of each of these sections.

The design of the final questionnaire was the result of a staged process. The first stage was the development of the first draft of a web-based questionnaire. This first design was tested in a pre-pilot phase where about 20 participants in Lisbon answered an ongoing version of the questionnaire. This phase was particularly relevant to test the clarity of the questions, their fluidity and sequence, the time spent answering the questions, and the overall feasibility of the questionnaire. This process allowed the questionnaire to be improved continuously, until arriving at the final pilot version. The average duration of the questionnaire in this pre-pilot was about 12 minutes, however, the length of time for responses from the first participants was higher than for the last. This was because the questionnaire was refined and improved throughout the pre-pilot phase, meaning, the tasks requested of the participants became easier and the wording clearer. But more importantly, the main factor in achieving a shorter time for the answers was because of the number of screening tasks (which are the most demanding), and the choice-based tasks. A shorter questionnaire was key to ensuring that participants completed it in a reasonable length of time and, also, that it made a reasonable cognitive demand of them. However, it must be acknowledged that even in its simplest version, the questionnaire demands considerable effort, even from those of a higher education level. However, if the number of these tasks were reduced, it would have had an impact on the reliability of the results. One key decision, therefore, was to balance the screening and choice-based questions in order not to influence the robustness of the results, and at the same time, guarantee a reasonable timing of response and cognitive effort from the respondents. Sawtooth, Ltd developed a command that permits exactly this, by testing the minimum number of tasks in order to maintain a minimum reliability of the results. This 'testing design' command runs five different fictional questionnaires indicating how many times each level would be presented to each respondent. Sawtooth recommends three times for each level and advises a minimum of two. The 'testing design' command was run for the pilot questionnaire with seven choice-based tasks, with three concepts presented each time, and six screening tasks, again, with three concepts presented each time.

This questionnaire design showed each level three times across all attributes except for 'urban typology' where two of the levels appeared only twice (Appendices C-I-1). This fact was acknowledged and accepted as a controlled risk since a higher number of tasks could increase the risk of frequent drop-outs during the data collection phase. The questionnaire was then tested again in the pilot stage in Genoa where 66 respondents participated. The responses from respondents were reviewed and showed coherent answers, nevertheless, there were still some key changes added to the questionnaire after this stage. These were the addition of a question regarding 'marital status', and the 'other attributes' and 'all attributes' sections.

You can find, below, a detailed description of the final structure of the questionnaire:

(0) Introduction

The first page of the questionnaire comprises a 'thank you' note with the following text: "Thank you for agreeing to participate in this questionnaire that should take between 10 to 15 minutes. To start the questionnaire, please click on the arrow below". The second page of the questionnaire gives a brief explanation of what the purpose of the study is: "This study explores the neighbourhoods in which we live or would like to live. To do so, we are interviewing residents of some neighbourhoods in Lisbon/Genoa and also house searchers in the metropolitan area of Lisbon/Genoa."

(1) Socio-economic Data

The socio-economic data collection was composed of two questions. The first one draws information about the dwelling groups that the participants belong to, with a list of four neighbourhoods and an option for house searchers. Participants had to indicate their neighbourhoods, or if they were looking for a new house in the metropolitan areas of the cities they live in. The question was: "You can find, below, a list of the neighbourhoods chosen for this study, and an option for house-searchers. (If you live in one of these neighbourhoods and are, at the same time, looking for a new house/flat, please choose preferably the option that indicates your neighbourhood of residence.)" Besides the five options, there was also a 'none of the options above' category, in case someone began the questionnaire without knowing about these requirements. This option would lead participants directly to the end of the questionnaire. The second page of this section of the questionnaire asked participants for some information about themselves, namely: their age, gender, education level, marital status, household composition (family, friends, spouse, acquaintances), the number of people in the household (excluding children), and the number of children in the household. Respondents were informed about the anonymity and privacy of all the information.

(2) Your Neighbourhood

In this section, participants were asked to describe their own neighbourhood according to the same attributes that composed the whole ACBC study (point 8.3.1). This question could be compared with the next section (build your own), where participants chose the levels that would build their 'ideal' neighbourhood. This section was only added after the pilot test in Genoa.

(3) (ACBC Task 1) 'Build Your Own' Section (BYO)

In the 'build your own' section (BYO), respondents were asked to choose one level per attribute and in this way, 'build' their perfect hypothetical neighbourhood. The question was: "Imagine now that it would be possible to build an ideal neighbourhood to live in. What would that neighbourhood be like? Please choose one of the levels of attributes presented and build the neighbourhood of your dreams." The section consisted of only four of the six attributes. Two

attributes were excluded due to it's ranked nature, meaning that the answers to those questions would be known *a priori*.

(4) (ACBC Task 2) Screening

In the screening task, participants had to indicate if a concept (a particular scenario of a hypothetical neighbourhood) would be a possibility for them. The question was: "Each column represents a hypothetical neighbourhood. Would you consider a possibility living in any of these neighbourhoods?" Each page presented three different concepts and the respondent would indicate either "it is a possibility" or "it wouldn't work for me" against each neighbourhood description (concept). This was the most repetitive and tiresome of all the tasks, and by presenting very similar concepts, participants tended to become confused, demotivated and even suspicious during this section.

(5) (ACBC Sub-Task 2) 'Must-Have' and 'Unacceptable' Top-Up Questions

Along with the screening task, the software detects patterns of choice. For example, if a participant always selects the option "it wouldn't work for me" for a concept where the attribute security is described as "usually safe", instead of "always safe", the software detects this level and asks directly, in a subsequent question, if that attribute is "totally unacceptable". This is the 'unacceptable' question. If that level is unacceptable for that participant, then the software will exclude it from the concepts to be presented in the choice-based task (see below). The opposite also happens. If the presence of a particular level is a sign of a positive answer in the screening section, then the software asks the participants directly if those levels are indispensable for them – in the 'must have' question.

(6) (ACBC Task 4) Choice-Based Task

Finally, there is the choice-based task: the core of choice conjoint analysis. In this task, participants were presented with three concepts and could only choose one. The question was presented in two steps. First, a note that another type of question would begin: "You will initiate now another type of question. From the neighbourhoods presented, please choose only one." This actually worked as a veiled sign that an important task would begin. In the next step, the participant was presented with the following question: "In which of the neighbourhoods presented below would you prefer to live? (The characteristics highlighted in grey is equal in the three concepts). Please consider that any other equally relevant characteristics that are not present in this study would be equal." As referred to earlier, here the concepts presented were already very near the ideal for each participant, permitting the software to test which levels were more easily traded for others. The participants that were very specific in their responses during the screening tasks would be presented with less choice tasks. And, for example, if during the screening task a participant indicated all the concepts as a possibility, the number of choice tasks

would be maximized. The ACBC study was complete at this point, however, two more questions were added.

(7) Other Attributes

The penultimate question asked participants to rank five other attributes that were also considered relevant during the focus groups. These attributes were part of the first design of the choice task but it was soon acknowledged they were too many to be processed successfully. Therefore, these other attributes were added in this post-choice based question. More specifically, the question was: "Before the end of the questionnaire, we have only two small extra tasks. Please rank the following characteristics by their importance (1 being the most important factor and 5 the least important factor)."

(8) All Attributes

The final question added the six attributes of the conjoint study (choice-based questions) to the five later ones and asked participants to indicate which ones were more relevant. The question was: "We now added to the previous list the six attributes that have been presented throughout the questionnaire. Please indicate the five that you consider the most relevant." This question would permit testing if, in fact, the attributes presented during the ACBC study were generally the more relevant ones for the participants.

You can find the final version of the questionnaire in the following links:

https://www.survey.eca.ed.ac.uk/francisca/It4c/login.html

https://www.survey.eca.ed.ac.uk/francisca/Pt4c/login.html

More information on attributes in point 8.3.1.

7.5.4 Data Collection

The data collection for the conjoint questionnaire was achieved in three stages. Two have been mentioned already (point 7.3), with the selection of Lisbon and Genoa as case studies, and the selection of the eight[48] neighbourhoods of study (focus groups participants). The third stage concerned the participants who undertook the conjoint questionnaire. This last sampling phase is discussed below.

The data collection of participants for the conjoint study aimed to achieve a balanced sample in terms of gender, age and dwelling contexts in order to be as representative as possible. However, the difficulties inherent in recruiting participants, and time constraints, did not allow a strict, controlled process, resulting in a sample that probably reflects more the convenience and

[48] Although one of them was excluded from the study during the questionnaires collection, due to lack of participants.

ease with which it was possible for the researcher to recruit participants. This is an acknowledged limitation of this research project.

Although the aim of this study is to compare residents in growing and declining neighbourhoods, a house-searchers' group was added as a control group since people in this situation are more open to envisaging their ideal scenario than those living in a determined environment with no possibility of change. For these ones, there might exist a self-convincing process of preferring what already exists in their neighbourhood.

However, from the three different groups sampled - residents of both growing and declining neighbourhoods, and a group of house searchers – it was possible to have some control over the recruitment of the first two more easily since some census information existed and was taken into consideration in order to accomplish a more balanced sample. The table below (Figure. 24) shows the indicators taken into consideration, and the percentages known to exist in the real population (census) and in the sample, respectively, plus their differences (in total and by city). From this table we can conclude that not only was it possible to control the sample in Lisbon more than in Genoa, but also, that people in the 45-65 year old age range were more difficult to recruit. This is probably due to the fact that there was a tighter control of the sampling in Lisbon, and that people in the middle-age group are probably the most difficult to recruit, either because they are at work, or because they do not use public spaces as much as the other age groups (Figure 24).

Sample Overview	***Male***	***Female***	***24/45***	***45/65***	***65+***
Bassa Val Bisagno (GE)					
% Real	36,69	63,31	20,65	26,36	52,99
% Sample	41,38	58,62	20,69	48,28	31,03
Difference	-4,69	4,69	-0,04	-21,92	21,95
Medio Ponente (GE)					
% Real	39,34	60,66	20,16	25,61	54,23
% Sample	57,14	42,86	21,43	57,14	21,43
Difference	-17,80	17,80	-1,27	-31,54	32,81
Centro Ovest (GE)					
% Real	39,25	60,75	19,67	26,78	53,54
% Sample	67,86	32,14	28,57	35,71	35,71
Difference	-28,60	28,60	-8,90	-8,93	17,83
Val Polcevera (GE)					
% Real	42,18	57,82	20,81	27,03	52,16
% Sample	48,28	51,72	20,69	44,83	34,48
Difference	-6,10	6,10	0,12	-17,80	17,68
São Paulo (LX)					
% Real	45,27	54,73	26,44	25,93	24,74
% Sample	47,62	52,38	28,57	38,10	33,33
Difference	-2,35	2,35	-2,13	-12,17	-8,60
Santo Estevão (LX)					
% Real	42,15	57,85	22,03	26,43	30,58
% Sample	53,57	46,43	32,14	35,71	32,14
Difference	-11,42	11,42	-10,11	-9,29	-1,56

Socorro (LX)					
% Real	44,17	55,83	24,41	27,25	25,94
% Sample	45,45	54,55	36,36	36,36	31,82
Difference	-1,28	1,28	-11,95	-9,11	-5,87
Mean Differences (GE)	-14,30	14,30	-2,52	-20,05	22,57
Mean Differences (LX)	-5,02	5,02	-8,06	-10,19	-5,34
Mean Differences (Tot)	-10,32	10,32	-4,90	-15,82	10,60

Figure 24. Sampling overview. Comparative table between sub-groups populations and samples.

Most of the participants of the two first groups, i.e., residents of the chosen neighbourhoods, were recruited in small squares, cafés, via civic associations and churches. Over the course of the weeks, bonds were created between some key members of the communities in order to reach as many participants as possible. I, as the main researcher of this study, was present when almost all the questionnaires in Lisbon were undertaken. In Genoa, the recruitment was firstly attempted through the Internet, but later, with more success, with the help of some colleagues who generously recruited participants in the streets, through Facebook and through acquaintances[49].

The group of house searchers was, however, the one that presented the most challenging task. In order to find 'house searchers', about eight real estate companies were contacted, however, not one participant was recruited through them. Most were recruited through personal connections, or again, via direct requests on the streets and in cafés, and just a few, through Facebook. For this third group, there was no information à priori, so the sampling process was more of a snowball kind, i.e., the sampling is made along with the recruitment process and it is typical of studies concerned with minorities, stigmatized populations, or dispersed groups. A snowball sampling relies, firstly, on a convenience sample that then is enlarged in expanding waves of recruitment (Heckathorn, 2011). This was the procedure followed, however, the sample achieved was quite homogenous in terms of the social and economic strata of the participants, with most of them coming from a high strata of the population. This fact is possibly due to the economic downturn being experienced in both Portugal and Italy, with the real estate markets stagnated and where only the most privileged are able to contract a mortgage. However, there is no certainty regarding the reliability of the sample of that particular group. Other indicators were collected although not strictly controlled for in terms of sample numbers as, for example, the indicator 'education level'. The fact that there are high numbers of respondents who have a higher education, overall, is because the 'house-searcher' respondents were generally better educated. The respondents that live in the neighbourhoods this research studied showed an inverse trend, where the majority of them had been educated to a basic level (Figure 25).

This situation can have a biasing effect, making it difficult to understand the role of age and dwelling context in causing differences in levels of importance and utility. However, the

[49] Since a phone device was used as router, camera, notepad, etc, it was not possible to develop a photo record of the data collection in process, since while doing the questionnaire the phone was being used as router. However, it was possible to take a photo record of some of the neighbourhoods

comparison between only growing and depopulating neighbourhoods can help disentangle such effects.

Regarding the sample sizes, the literature on ACBC (Adaptive Conjoint Analysis) affirms that one of the main advantages of this new sub-method is that it does not demand large samples. However, there is not much information regarding the appropriate, or exact, estimation of sample sizes for ACBC studies. The rule of thumb used for CBC (Choice-Based Conjoint), therefore, was used as a guide for this study. In CBC, the sample sizes are estimated using the following formula:

$$nta/c > 500$$

where,

n= number of respondents

t= number of tasks

a= concepts per task

c= largest number of levels per one attribute

In the case of the questionnaire developed for this study, there were seven tasks, with three concepts per task, and four attribute levels for the largest number of levels. Using the formula with **n** as incognito, we can deduce that if we were doing a CBC study, each cluster of participants should have more than 95 respondents. In the study, there are many possible clusters of interest; dwelling contexts were the most important ones. Some of them surpass the threshold of 95 participants, and some do not.

For example, Genoa and Lisbon present, respectively, 153 and 130 participants. However, in the dwelling groups, the cluster correspondent to house searchers does not reach the 95 participant threshold. Also, if looking at dwelling contexts per city, the threshold is not reached (Figure 26). However, this is not a CBC study, but an ACBC one, so the existence of smaller samples does not necessarily mean that the data presents a higher than accepted standard error. In fact, the study conducted Jervis et al. (2012) suggests that an ACBC study delivers robust results with a sample three times smaller than a CBC study.

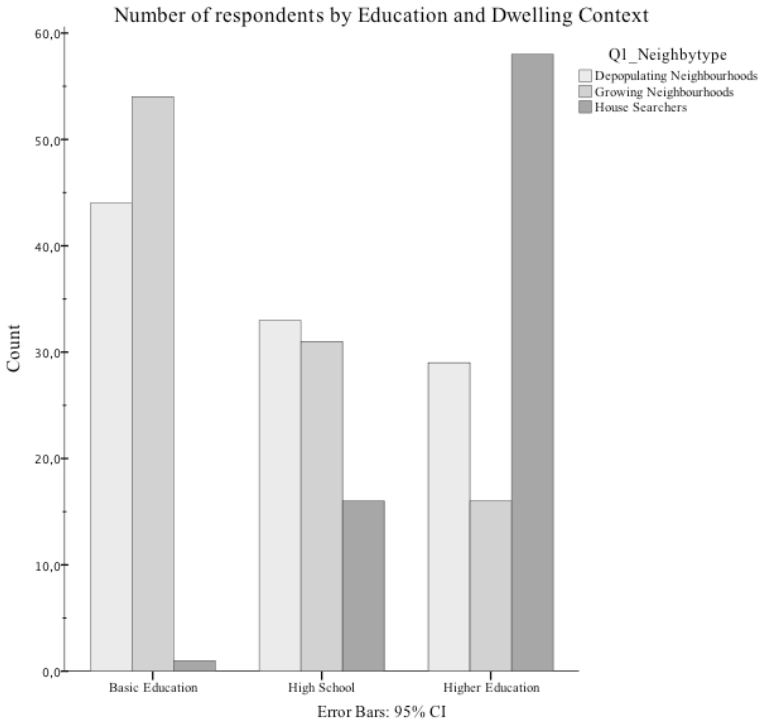

Figure 25. Number of respondents, by education level and dwelling context

In summary, the profile of the total sample was as follows (Figure 26):

Socio-economic Variables			***N***
Overall Sample Profile			**282**
Gender	male		142
	female		140
Age	25/44		113
	45/65		102
	65+		67
Education	basic		98
	intermediate		81
	higher		103
Children	no children		221
	children'		61
City	**Genoa (GE)**	**Total**	**152**
		Bassa Val Bisagno	29
		Medio Ponente	28
		Centro Ovest	28
		Val Polcevera	29
		House Searchers in GE	38
	Lisbon (LX)	**Total**	**130**
		São Paulo	21
		Santo Estevão	28
		Socorro	44
		House Searchers in LX	37

Dwelling Context	Depopulating Neighbourhoods	106
	Growing Neighbourhood	101
	House Searchers	75
Dwelling Contexts per city	Depopulating Neighbourhoods (LX)	49
	Growing Neighbourhood (LX)	44
	House Searchers (LX)	37
	Depopulating Neighbourhoods (GE)	57
	Growing Neighbourhood (GE)	57
	House Searchers (GE)	38

Figure 26. Profile of the total sample.

In Lisbon, the interviews were mostly undertaken with assistance. During that process, some meaningful views or 'phrases' were spontaneously recorded while trying to recruit participants.

Although the aim of the research was never openly described, several residents naturally addressed the number and extent of empty buildings around them, for example:

> "Only in my street there are three empty buildings, all of them from *Santa Casa*[50]" (*Mouraria*/*Lagares* Street, 13th of November, 2014)

> "In my street I have five empty buildings all of the same owner" (*Mouraria*, 4th of October, 2014)

> "I am the only one living in my building. If I have a problem and shout, no one will rescue me" (old lady in *São Paulo*, November 2014)

As for the neighbourhood and community, several times, participants complained about the loss of a strong community that once existed:

> "Our times do not promote a friendly neighbouring" (14th November 2014)

Interestingly, green spaces were mentioned also, spontaneously, while filling out the questionnaire:

> "Yes, green spaces (while clicking in that choice)…it's good to release certain tensions" (*São Miguel* Street, Alfama, 3rd of October 2014)

In one afternoon, while waiting for a participant to join me, I overheard two conversations in *Miradouro de Santo Estevão*, a high point protected by the burning sun and with a 180º angle view to the Tagus river. One of the conversations was among a group of adolescent residents of *Santo Estevão,* and students of a local school. They were discussing the wicked nature of their teachers, the way they feel fat, their nervous breakdowns and the epileptic attacks of a common friend,

[50] *Santa Casa*, literally meaning the holy house, is a charitable organisation funded in 1498 by the Portuguese queen, D. Leonor. It functioned as an equivalent to the social state since late medieval times and still today, it both complements the social state system and is a very powerful institution, with a very large "collection" of real estate patrimony.

work and the death of relatives. The other conversation was among a group of Italian tourists, two young women and two young men, who were discussing love stories while enjoying the river view. Although just an example, it struck me as two completely disconnected worlds suddenly using the same space, and how the temporary use of a space can hide a very oppressive reality in front of one's eyes[51].

7.6 Overview of Research Strategy

The graph below summarises and gives an overview of the research design used in this doctoral research project (Figure 27).

As mentioned before, besides the literature review and choice of case studies, the research strategy followed in this research project had two main sequential steps: one exploratory and qualitative, aimed at hypothesis one to three that permitted a targeted development of the conjoint study. And the conjoint study itself, aimed at the hypotheses four to seven.

[51] On another day, a worker at *São Miguel church*, a non-resident, complained about the neighbourhood. He mentioned the drug dealing and thefts, mainly targeted at distracted tourists; the increasing unemployment and youngsters dependent on benefits; the massive reconversion of buildings into hotels, or local shops into *fado* houses and touristic gift shops; the rising number of older residents that do not have the strength to fight against the drug dealing, the unclean streets or the massive number of tourists; the leaving rate of couples as soon as they have the first child (30th of September, 2014). Also, a gift shop worker in a nearby neighbourhood, complained about the drug addicts and the insecurity of the neighbourhood.

Residents in the focus groups had mentioned all of these topics, but one: the drug dealing problem. It did not feature very often in the discussions between residents. The overwhelming presence of tourists was much more strongly and negatively addressed by residents, but while recruiting participants and talking with other users of the space, the theme of drug dealing suddenly gained more strength. São Miguel presents a more problematic social reality, according to some social workers that were interviewed, however, *Santo Estevão* is probably also affected by these realities.

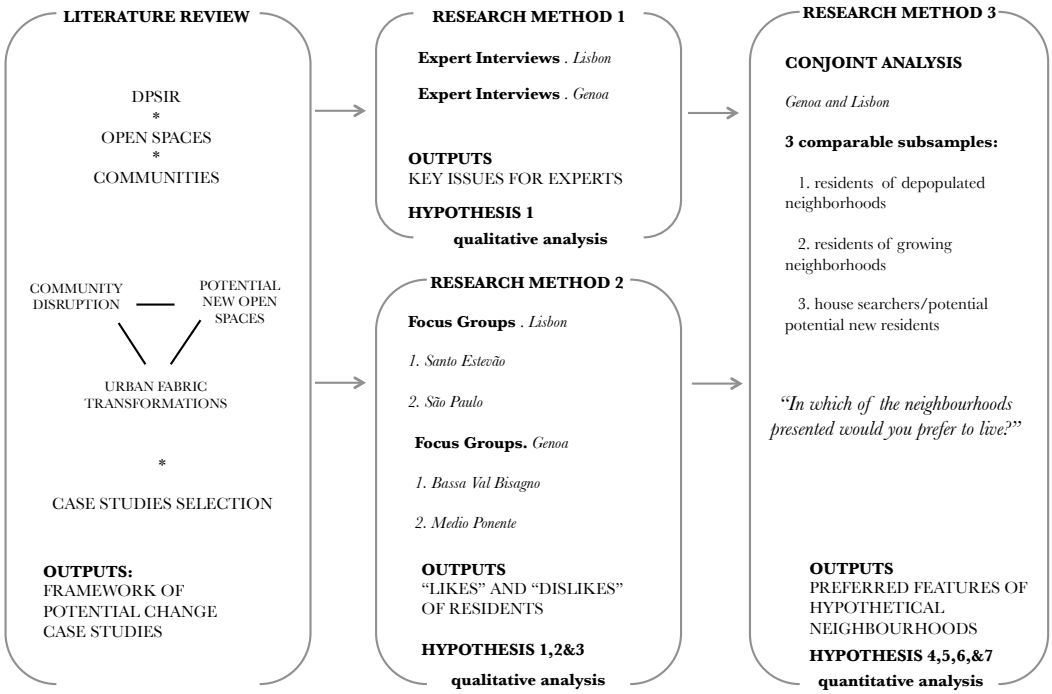

Figure 27. Research Strategy (Note: DPSIR: "Driving Forces, Pressures, States, Impacts, Responses". It is a model of analysis of phenomena widely used).

Research methodologies always have strengths and weaknesses. For example, conjoint analysis, a quantitative method, is not particularly strong at in-depth analysis of the reasons behind people's choices. It was crucial, therefore, to begin this research with qualitative approaches that could enlighten the results from the conjoint study, and also, to register some comments of respondents during the conjoint questionnaires' collections in order to better understand and discuss the outputs of the overall research.

SECTION III

8. Results

This chapter will explore the results of each of the three research methods used in this study. As referred to previously, the first two methods were exploratory and the results informed the third method. At the end of each section, there is a summary detailing the most important findings of each method.

8.1. Expert Interviews

There are a number of themes that were mentioned repeatedly in the different interviews in both cities. One of those themes is job losses. Although the two cities have different economic realities, with Genoa suffering more from a sharper and more recent deindustrialization process, and Lisbon more affected by the loss of trading activity in the port, both city centres have lost close access to sources of jobs, mainly, low income ones; the same ones that used to sustain a socio-economic strand of society, typically unskilled people and with low incomes, in the studied neighbourhoods. When asked about their perspectives on the forces dictating demographic losses in their cities, many interviewees' comments concerned the loss of jobs, although more strongly in Genoa. You can find some examples below:

> "It is the lack of jobs. Cities are the places of work. If there is no work, if there are no job opportunities, and also in the cultural, technological or innovative world…" *NL*, 16 January 2013, Ge

> "And then there are other factors, maybe the economic factor, the lack of economic activities also keeps people away… They go to other places where they can find their jobs…" *MLP*, 25 July 2012, Lx

> "The first justification of this trend, for me, is the drop in fertility. (…) The second is clearly the decline of the productive sector in this area of the city, particularly industrial activity...
> This part of the city used to concentrate 70% of all the productive activity of the city." *GS*, 13 May 2013, Ge

> "For example, 40% of my friends do not work in Genoa. They might work in Milan, or another place...Turin...They left the city…My own mother had to go and work in Florence. She is now fifty… (…). My brother is in Paris…Half of my family is not living in Genoa." *AP,* 16 January 2013, Ge

> "Even during our project *genova meno uno per cento*, two of the five offices have moved out…in only two years…" *NL* 16 January 2013, Ge

In Lisbon, other issues were raised too when discussing the drivers for such demographic losses, especially those concerned with the suburbanization process. In fact, for many interviewees in Lisbon, the problem has more to do with an inner migration process instead of an absolute loss of population.

> "In other parts of Lisbon, more modern ones, you can find parking spaces, walking spaces, green spaces (pure air to breathe)…The city centre doesn't have any of those facilities." *JCN*, 18 April 2012, Lx

And in fact, easy access to loans to buy houses in the 90s boosted house purchases in Lisbon's metropolitan area, especially in the districts surrounding the city centre council (Ferreira et al. 2005).

> "No one used to buy a house, but then they started buying, instead of renting…Then they bought outside (the city)…(…) And slowly the parish became empty…Notice this building just in front…there used to live hundreds of people there." *PBX*, 30 January 2013, Lx

And the census up to 2011 confirm this reality, especially during the 80s and 90s:

TC is technically responsible for Lisbon's Housing Programme and in her interview, she reinforced several times the fact that the migration to the outskirts of the city gave people better housing conditions and it was a sign of positive progress in people's lives, i.e., being able to buy their own house with modern and better living conditions. However, the situation in the last decade has changed slightly, as we have seen in point 7.3.1, with stabilization, and even a slight decrease in the overall population size of Lisbon's metropolitan area (AML), and not only in the city centre council, in the last three years.

Related to this issue, and also recurrent and expected, is the theme of the out-migration of younger citizens, with the consequent reinforcement of an older composition of the city centre communities.

> "The impact...the fundamental consequence, is an elderly population. This is the first consequence." *GS*, 13 May 2013, Ge

> "Our city still resists because a great part of its population has a guaranteed income, their pensions. A great part of the population is retired. Their sons lose their jobs but can still count on their parents' pension. Only on that aspect the city resists the crisis. If we do not reverse this trend we risk having a desert city…a 'Far Oest'." *GS*, 13 May 2013, Ge

Also, the increased presence of unskilled emigrants is referred as a theme of concern, especially because it is associated with a rise in criminality and with the competition for jobs.

> "Yes, there are two gangs that fight each other and that stop people everyday. (…) One of them is called 'Nietas' and the other 'Latin Kings'. (…) from South America. We have many people from Ecuador (…). But I think that the worst has passed, thanks to a squat…" *AP,* 16 January 2013, Ge

> "Also, because there is enormous competition from the non-EU population; they are willing to do the work and they demand less." *GS*, 13 May 2013, Ge

> "I would say yes...From my knowledge, there is a migratory flux of people with better education...In that sense, the non qualified workforce risks not finding jobs here nor anywhere else. *GS*, 13 May 2013, Ge

> "Everyday they are here...from Angola, Cape Verde..." *PBX*, 30 January 2013, Lx

However, outsiders, that work or contact with these communities, believe that these suffer from a kind of social down-leveling. Something linked with what is described in the literature as the "dark side of social capital":

> "But the population is suspicious, very critical…They put everything down… We can only endure this, and go forward in this social environment with a great spirit of mission. You see what this environment is? Sick, corrupted…" *PBX*, 30 January 2013, Lx

> "Yes, this is a place now! People already come here to stay. And before it was pretty marginal. Some people throw a lot of garbage. They still do…less though. We have a big problem with garbage here. They used to use the space to walk their dogs, but they didn't collect their poo. And now they do. They do. (…) It is good to see that change. Things slightly change…The behaviours!" *IC*, 31 August, 2012, Lx

> "Well, only the fact that the allotment is here has improved considerably this area that has a high rate of criminality. (…) It is also an area with a lot of drug addicts…they used to stop around here a lot. Not now…It is already an area with a different energy, with another ambience." *IC*, 31 August 2012, Lx

There is the general hope that tourism and nightlife activities, even if controversial, might be a quick answer for these declining cities and especially to these declining neighbourhoods.

> "All the city should get used to welcoming [tourists, he means]. It is a cultural problem. The new generations have already understood that they have to turn to tourism. The problem is the older ones. Life says that you either die or you adapt…I am convinced that we can't die [laughs], and therefore, there will be a cultural adaptation. The alternative is the death of the city." *MF*, 14 May 2013, Ge

> "Because *Cais do Sodré* (*São Paulo*) is already being rehabilitated through its nightlife. There you have... it is either too little or too much. This has passed from the too little to the too much and now we have a problem. This was dying, and now we have a problem. (…) People buy a drink and come to the street... And then you have noise and the residents can't rest. There must be some respect…That's why it is going to be difficult. That is why there has to be a method in which the businesses continue working and people can rest. (…) But people know that when they come to live here…" *FPD*, 30 November, 2012, Lx

So, although this civil servant is concerned about residents' wellbeing, his view is that businesses concerned with nightlife have the power to boost the neighbourhood and that whoever comes to live there should know that life in that neighbourhood encompasses such realities.

Finally, regarding the common question about demolitions, the reactions in Lisbon and Genoa were slightly different. In Lisbon, interviewees referred most commonly to the emptiness of the centre as a consequence of suburbanisation and had the belief that sooner or later, the area would stabilise, or at least, that tourism or other activities would boost it.

For this reason, future strategies for these urban spaces are focused on conservation. *TC* mentioned one of the council's assemblies where conservation of the patrimony seems to now be more consensual than in more prosperous years, even acknowledging that public funds for direct building recovery programmes are no longer available, and that new strategies of conservation and rehabilitation, although still a priority, will be based on public credit for private investors.

> "The Council itself will not do rehabilitation. It will rent or sell so that the residents can do it themselves." *TC*, 26th July 2012, Lx

However, the president of the civil parish of São Paulo, the one that presents 40% of the buildings with structural problems, affirmed:

> "To recover a building is very expensive. It is very expensive! Maybe it is easier to take a picture of the façade and say: 'Let's demolish and redo the one, same façade.' In concrete…But that… The great 'masters', like the vice-mayor…It is as if you are stabbing him…They are architects… (…)...And now, what do we do? Let them fall?" *FPD*, 30 November, 2012, Lx

JCN, an expert in real estate matters, when asked about the decrease in the rate of population loss in some inner-city districts in the last decade, said:

> "There is no one else to leave. (…) Well, I think that it is a normal statistical effect…It is as if we are selling a new product. (…) when the target public is achieved, the selling rate stabilizes…here we have the same thing but in the opposite direction. The demand for better living conditions drove people away from the centre but after some time, the drain stabilized and slowed down. The others adapt and are resigned to the present conditions." *JCN*, 18 April 2012, Lx

In Lisbon, the idea of strategic demolitions only came up when the interviewees were asked directly about them, or at least, when it was suggested implicitly. In both cases, the reactions were conservative, cautious, or even totally rejected:

> "Sure, that is a very interesting project for architects and for the Council that should invest in those matters. On the other hand, we are in such a situation that there is no financial capital to invest in those projects. Most of the investors of the construction sector in Portugal, if not already bankrupted, are in the process of becoming bankrupted. Most of the patrimony of these companies is now being given back to the banks." *JCN*, 18 April 2012, Lx

Or, when discussing the possibility of temporary public uses of these spaces,

> "I do not see vacant land giving way to green spaces. It won't happen. It will 'wait' until there are market opportunities. That approach doesn't exist." *TC*, 26 July 2012, Lx

On the other hand, in Genoa, there was wider acceptance of scenarios whereby sharper interventions could occur in the city, such as demolitions, mainly because Genoa has suffered a more widespread loss of residents. It is a city placed in a hydrologic and geologic sensitive landscape, and also because its urban sprawl in the 20th century was sometimes chaotic, resulting in an urban fabric not compatible with a proper quality of life in many places:

> "All the constructions of the fifties and sixties, when the city changed from 5.000 inhabitants to 90.000…and therefore, they built these ugly houses, of low quality, and consequently, low urban quality, and low quality of life. It was an emergency culture. Well, now those houses are being occupied by foreign immigrants that pay less." *MF*, 14 May 2013, Ge

> "There are more than 30.000 [empty housing units], but I have seen different data. …We have civic movements against empty houses, and in their data they present 45.000." *AP*, 16 January 2013, Ge

> "We live in a paradox in this city, on the on hand, a big part of the patrimony is empty, on the other, people need houses (social housing). Therefore, it is a paradox…" *AP*, 16 January 2013, Ge

The factors mentioned above were the initial concerns of the authors of the project *Genova meno uno per cento* (GE-1%), three of whom were interviewed. GE-1% is the result of the joint work of five architecture offices based in Genoa that propose to improve the city's urban reality by demolishing only 1% of its buildings. Each office proposed and developed different approaches to achieve the 1% figure. For example, either by concentrating all the demolitions in only one district to create a park, or demolishing along a line, allowing the construction of an inner-city walking path or a new street, or demolishing in a circle around stabilized areas in order to create parking areas or gardens. On this, some of the authors of the project said:

> "We do not want to destroy villas or amazing buildings…nothing of the sort. But if we walk in the city centre, we see many buildings from the fifties, from after the Second World War. Some

> of them half empty. If we demolish them, we can have space for a square, for example, for public space. And we serve the city…" *AP*, 16 January 2013, Ge

> "We started from the idea of a polycentric city. Then we thought it would be a strategy to think of the city as 'islands' and create green belts between those islands… Green space. That is what is missing. Sports, gardens, urban agriculture, renewable energy, and parking space…parking space is the big problem. So, then, we identified three strategies and we gave them names: (1) 'removal', contraction; (2) 'claim', (…) it has to do with the recovery of the historical centre after having been abandoned; and lastly, (3) 'respect'[52]; especially in the last years, Genoa has been suffering many ecological disasters." NL, 16 January 2013, Ge

The belief of Gosplan group is that the projects are possible but that they will not be easily accepted:

> "It has to do with the meaning that we give to the void… The void shouldn't be a 'terrain vague'…or something that you leave abandoned... But something that serves the city… (…) And that probably valorises the rest... what is around… (…) something that can raise the price of their houses…that way they might understand it… But in Genoa, I think it is impossible… Well, it is possible. We can do it… but I do not think that in Genoa there exists the mindset to do this in a city… Maybe not in Italy, even… " *AP*, 16 January 2013, Ge

Also, another of the *genova meno uno per cento*'s proposals, the one from the Baukuh architectural office, has been presented for discussion to the main social and political forces of city life, however, the author, PC, architect and professor at the University of Genoa, confessed that the project did not receive real positive feedback, nor did he feel there was a sincere political will to go forward with the project, even on a small experimental scale:

> "We had a gathering/discussion. But I have to confess it was quite boring. (…) There was the vice-mayor, and the chief of the constructors of Genoa and Giorgio…from Domus (magazine), and the executive chief of the Liga Ambiente… (…) But it was very boring. Everyone said…'Yes, ok, it is a good idea but …' (…) No one really sees the problem. I don't want to say they do not care. At least you can decide…I don't care about this…But actually, they don't see the problem…and the opportunity, of course." *PC,* 24th May 2013, Ge

Interestingly, there are other themes that are more common in Genoa than in Lisbon. For example, in Genoa, there is a very clear sense of the dimension of population loss:

> "In 1980, Genoa had 870.000 inhabitants (…). In 2013, the city had around 600.000…(…) We lost 270.000 people in 30 years." Massimo Ferrante, 14 May 2013, Ge

[52] (1) Retirata; (2) Reivindica; (3) Respetto

Whereas in Lisbon, there is not such a clear picture of the scale of population loss even in the civil parishes more affected.

> "You said that my civil parish is one of the most affected by population loss. Where did you find that information?" [surprised tone of voice] *MLP*, 25 July 2012, Lx

And even when there is clearer acknowledgement of the loss, it is not referred to as something to be too concerned about:

> "Therefore it is a natural process of social mobility; those younger populations went to other places. They went to *Cacém* (…) they went to the outskirts of the city. Therefore, this trend was not catastrophic, it was social mobility." *TC*, 26th July 2012, Lx.

Also, in Genoa, the theme of ecological instability and geological/hydrological sensitivities were frequently mentioned, whereas in Lisbon, that theme was not referred to once. The recent floods that happened in Genoa, especially on the 4th of November 2011[53], when six people died, are the basis for such concerns and references (Casali, 2012; Chiaramonte, 2014).

SUMMARY:

The interviews to experts and civic activists in Lisbon and Genoa indicate that there are common concerns in the cities of Genoa and Lisbon. The concerns related with jobs, housing conditions and dereliction or lack of green spaces are common to both cities. Also, the absence of a political awareness regarding a potential need to reaction is also common to both cases. However, the interviewees in Genoa showed a higher awareness of shrinkage, even if their ideas were not strongly supported by municipal policies, whereas in Lisbon, there was little awareness but also, there did not seem to exist any genuine debate about this situation. This probably is linked with the higher level of suburbanization in Lisbon. Moreover, it is important to acknowledge that in Lisbon, the policies of conservation of the city centre are changing from a process strongly controlled by the municipality, to a process monitored by it, but managed by private owners. In Genoa, there were no references to such programmes. Also, in Lisbon, there is the belief that empty lots will remain empty until the real estate market naturally absorbs those spaces. A scenario of shared occupation of private land for recreational uses was not acknowledged as probable, even if only temporary.

[53] After the interviews, the city suffered again from a serious flooding episode on the 9th and 10th of October 2014 that caused one death.

8.2. Focus Groups

Regarding the focus groups, the first phase of the data analysis was the mapping of the different relevant themes being referred in the discussions. As mentioned before, the definition and mapping of the themes followed a cyclical approach. Six major themes and fourteen themes were defined according with a baseline of thirty-nine sub-themes identified directly from the transcriptions of the discussions (appendix B).

The six major-themes considered are: (1) *Security*, (2) *Facilities & Economy* (3) *Community & Policies*; (4) *Open/Public/Green Spaces*; (5) *Housing*; and (6) *Immeasurable Assets* [54]. The figure below maps the final thematic structure that resulted from the data (Figure 28).

The themes were counted, and divided into positive and negative references. This strategy permits an overall perception of the main issues and concerns of the communities living in these neighbourhoods.

One of the first broad observations when analysing the final counts according with positive and negative references is that, overall, there was a less positive perception of the studied neighbourhoods, with approximately 60% of the major-themes being referred to negatively (Figure 26).

However, different neighbourhoods were viewed very differently, with *Bassa Val Bisagno* in Genoa the neighbourhood most negatively assessed by residents (67,5% negative references), and *São Paulo* in Lisbon the one less negatively assessed (54% negative references).

[54] (1) Safety (BB+CC), (2) Facilities (DD+KK+NN+AA); (3) Community (GG+HH+II+OO); (4) Green Spaces ((LL+MM); (5) Housing (EE); and (6) Immeasurable Assets (FF+JJ).

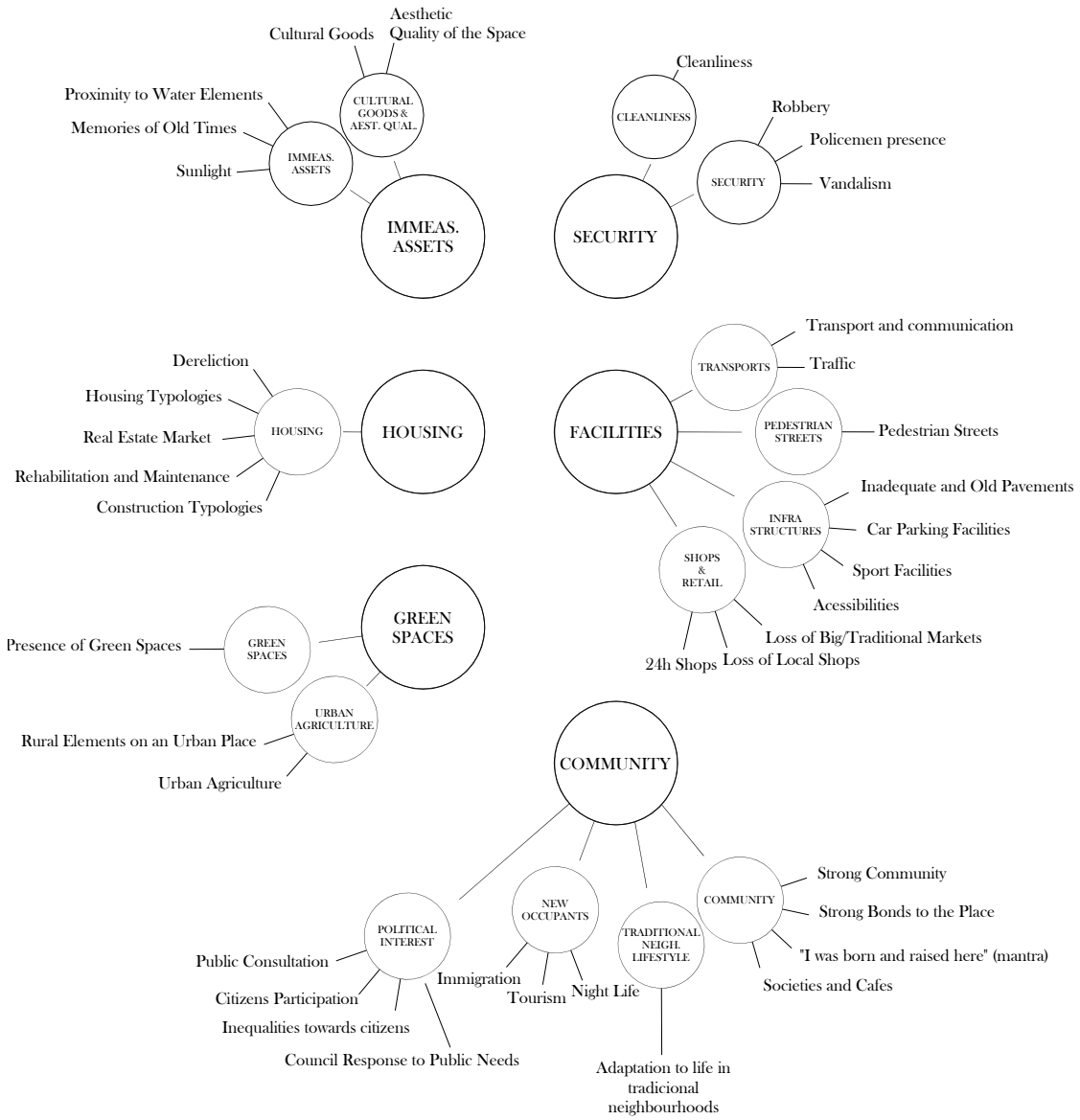

Figure 28. The overall thematic structure, from major-themes, to themes and sub-themes (appendices B-II).

The graph below presents the overall results by major-themes, differentiated according to positive and negative mentions (Figure. 29).

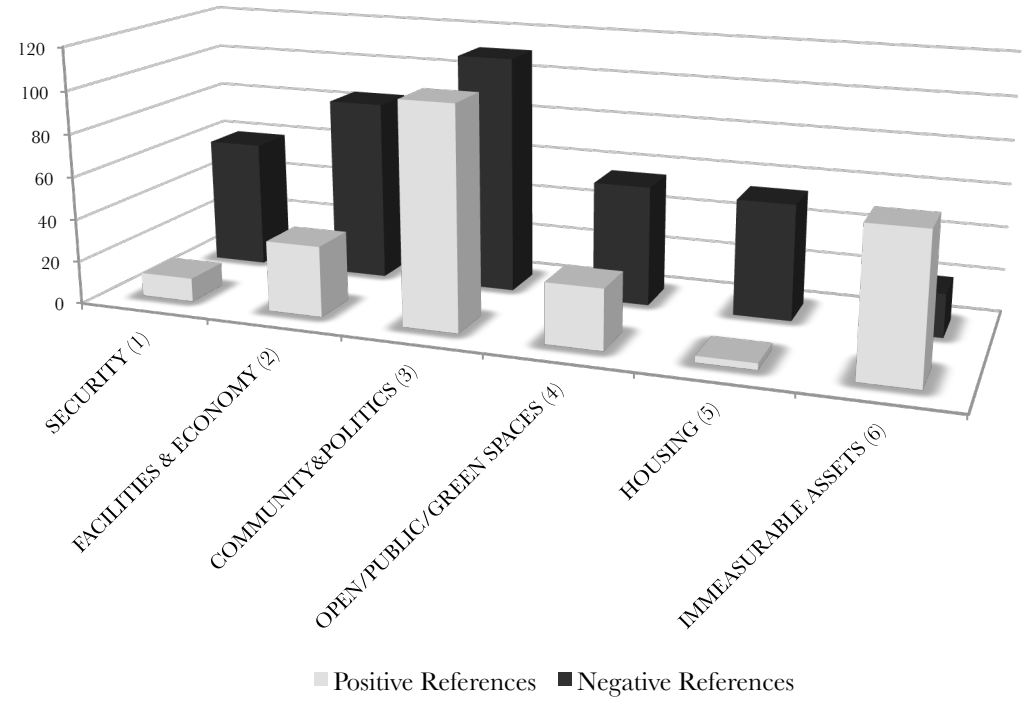

Figure 29. The number of times different major-themes were mentioned positively or negatively in Lisbon and Genoa.

The following ranking orders can be extracted from the graphic:

- from the most to the least negatively assessed subject: (1) Community & Politics; (2) Facilities & Economy; (3) Security; (4) Open/Public/Green Spaces; (5) Housing; and (6) Immeasurable Assets (Figure 30).
- from the most to the least positively assessed subject: (1) Community & Politics; (2) Immeasurable Assets; (3) Facilities & Economy; (4) Open/Public/Green Spaces; (5) Security; and (6) Housing (Figure 30).

And if considering the total number of times that a major-theme was mentioned the ranking order is then:

- from the most to the least mentioned subject: (1) Community & Politics; (2) Facilities & Economy; (3) Immeasurable Assets; (4) Open/Public/Green Spaces; (5) Security; and (6) Housing (Figure 31).

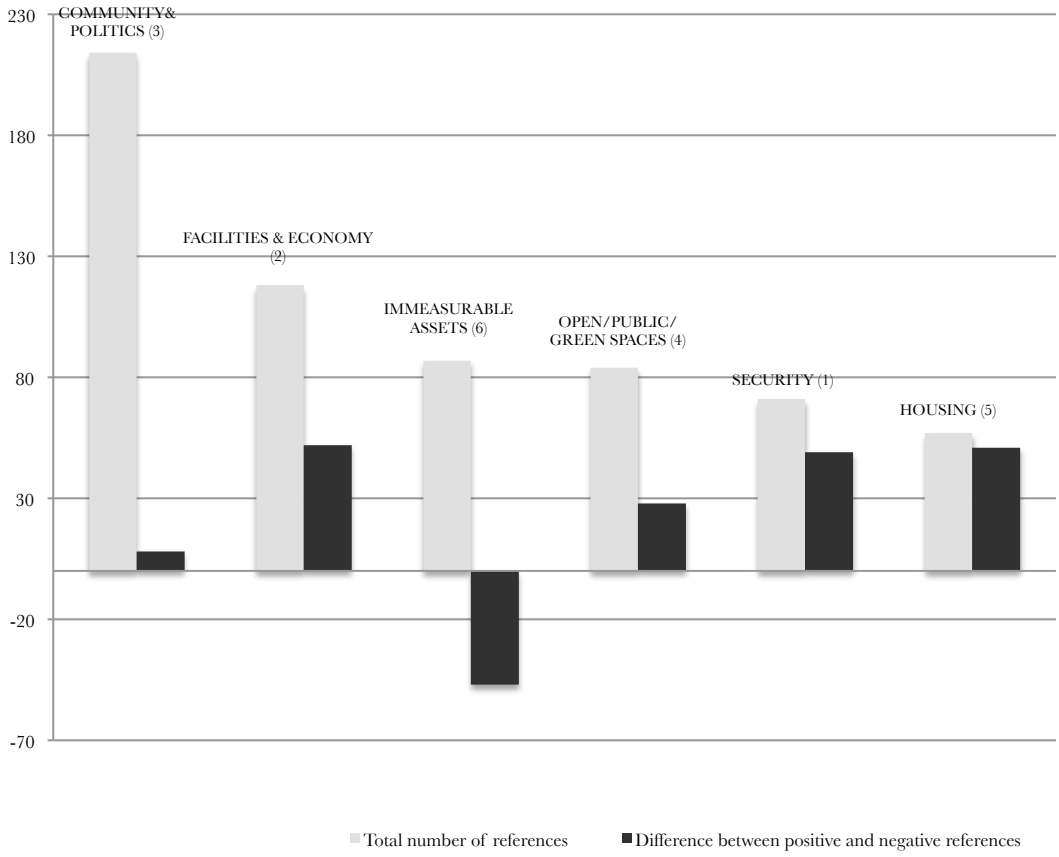

Figure 30. The total number of references to major-themes, and the differences between negative and positive references.

It is worth mentioning that besides the major-theme *immeasurable assets*, all the other themes have more negative references than positive ones (Figures 30). The major-theme *community&politics* is mentioned the most, far more so than the second ranked major-theme, i.e., *facilities & economy*. The themes *immeasurable assets* and *open/public/green spaces* are very close in terms of the total number of references although the latter has a more balanced profile in terms of the difference between the positive and negative assessments. *Security* and *housing* are the least mentioned major-themes, and *security* gathered more positive assessments compared to the close to nil positive references for *housing*.

In a more detailed approach to the data, it is possible to compare negative and positive references between themes, as opposed to major themes (Figure 31). The top negative aspects perceived by residents of depopulated neighbourhoods are: (1) housing types and conservation (EE); (2) undesirable emerging activities in the neighbourhood, such as nightlife activities, and undesirable new occupants, even if only temporary ones, like tourists, or new population groups such as immigrants (II); and (3) security and cleanliness of public spaces (BB+CC). The topic most positively referred was the (1) strength of the community and place attachment Other topics

addressed positively seemed to be related more to general environmental conditions, like: (GG); (2) good sunlight and proximity to water elements, and memories of old times (JJ); and (3) cultural goods and the aesthetic quality of the space (FF).

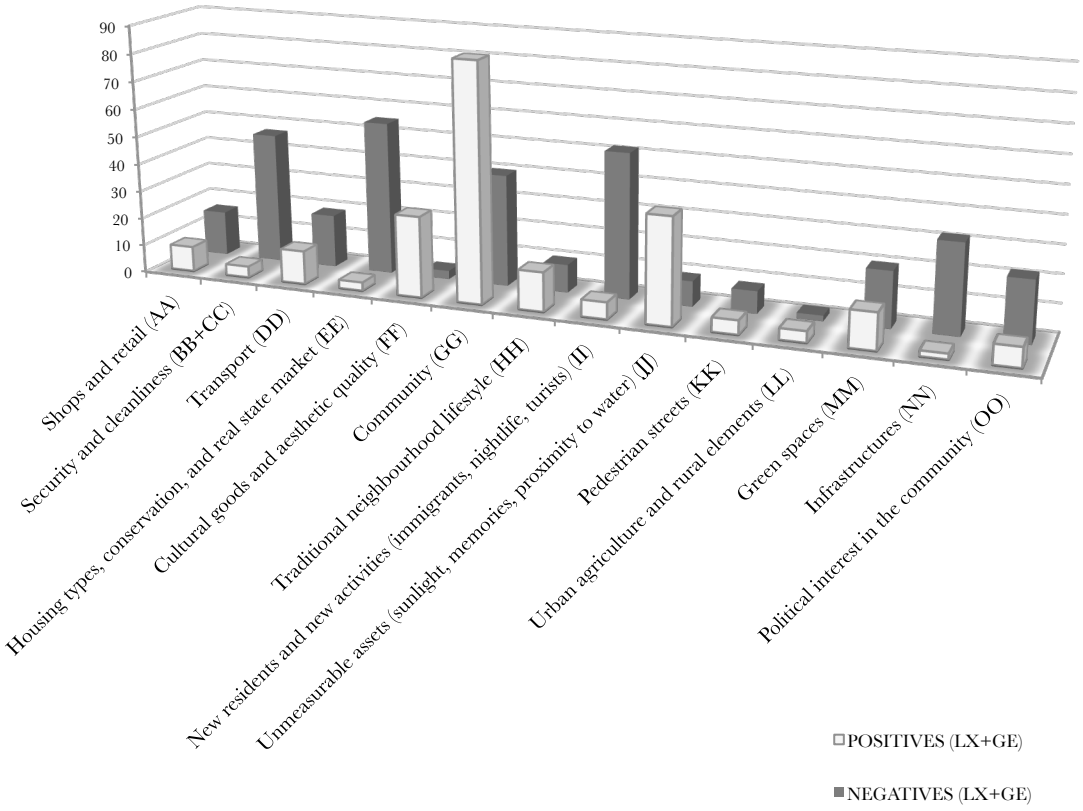

Figure 31. Number of times a theme was mentioned (positively and negatively), according to the final 14 joint categories.

The major-theme *community*, the one that was mentioned the most, overall, encompasses the following themes: community, in the sense of neighbouring (GG), lifestyle in traditional neighbourhoods (HH); new residents and new activities (II), and the political interest in the community/political action (OO). Interestingly, most of the positive references are associated with neighbourly and social support from neighbours, whereas most of the negative references are associated with the presence of new occupants of the space as, for example, tourists, nightlife occupants or new residents, namely, immigrant minorities, as mentioned above, and also with inefficient political action.

For example, one resident from the neighbourhood *Santo Estevão* said:

> "… here, and in other old neighbourhoods like this one, you can still find affinity between people. It reaches the point where people still say the other person's name when they say 'good morning'. That is very important." (Resident AP, *São Paulo*, 45-65 group)

There also seems to be a strong sense of loss about that proximity. There is a sense of resilience compared to other neighbourhoods of the city, but simultaneously, a sense that that proximity is also slowly being lost:

> "This was a family. Here in *Alfama*, it was a family." (Resident LN, *Santo Estevão*, 45-64 group)

> "It is not the 'good morning' that you say to the building neighbour that you do not know. No! The affinity still exists. Although in these old neighbourhoods, many young people have arrived, with positive and negative aspects, of course, (…), but they leave and return without speaking to anyone...those that stay for a longer time, end up mingling more…and also in the dialogue… 'are you better', 'are you worse?', 'how are you?', 'today is sunny'…the minimal and healthy conversation between people" (Resident AP, *São Paulo*, 45-65 group)

The decrease in the familiarity between neighbours, felt by older residents, was normally followed by a highly negative perception of new residents from other countries, or even from other parts of the city. For example, a resident from the *São Paulo* neighbourhood complained about immigrant residents' lack of regard for the proper time to place the garbage in the street:

> "They say that we think we own everything here. (…) He (the immigrant) replied that he puts the garbage out on the street whenever he wants, because the neighbourhood is not ours." (Resident IR., *São Paulo*, 25-44 group)

And another resident replies:

> "No! The neighbourhood is ours! The neighbourhood is ours!" (Resident R., *São Paulo*, 25-44 group)

On a similar note, a resident from *Santo Estevão* also noted:

> "But the neighbourhood is ours, is not from the foreigners. The neighbourhood is ours" (Resident BA, Santo Estevão, 25-44 group)

In fact, throughout the discussions, especially in Lisbon, there were frequent references to a sense of belonging/ownership towards the neighbourhoods. Being born and still living in these neighbourhoods was often announced with a lot of pride. In fact, the phrase "we were born and raised here, and we live here" was repeated almost like a mantra by many different residents, showing a sense of the entitlement they felt about having a higher position within the community due to a "native" quality. One resident from *Santo Estevão* even used the word "pure" to describe himself, and those residents that have always lived there, and whose family was already living there in previous generations:

> "Therefore, pure, pure... we should be twenty per cent. Nowadays, maybe ten per cent (of the population of the neighbourhood)" (Resident PRP, *Santo Estevão*, 45-64 group)

Other groups of people, too, are regarded with suspicion as, for example, nightlife users and tourists. There is an array of problems associated with users of nightlife, such as noise during the night, security problems and a lack of cleanliness. These problems, in turn, bring a sense that there are insufficient council policies that are safeguarding residents' wellbeing:

> "The only problem I see is how the council neglects this neighbourhood enormously" (Resident V. *Medio Ponente*, 65+ group)

> "[there is] the sensation of abandonment of the institutions towards middle and lower class citizens. This abandonment triggers people to close in on themselves (...) We lack debate, dialogue, communication… we lack many things, because the institutions have really abandoned us… (Resident F, *Medio Ponente*, 65+ group).

However, particularly in Lisbon, there is a constant complaint, in both the *Santo Estevão* and *São Paulo neighbourhoods*, and across different age groups, regarding the permissive attitude of the political actors about the authorization of nightlife activities in the streets, which are incompatible with residents getting a good night's sleep:

> "The only thing that disturbs me is the noise. Where I live [the noise] is until 5am and 6am." (Resident J., *Santo Estevão*, 65+ group)

> "We, in *Alfama*, are used to hearing noises when there is a birthday party, or a barbecue, or when a neighbour brings family over and puts a table outside in the street... (…). But suddenly there was someone that started giving (bar) licenses until 4am." (Resident PRP, *Santo Estevão*, 45-64)

> "I think that there are here wrong policies from the council regarding the historical neighbourhoods, and from those that govern us, because, the truth is that in the political campaigns there is always the promise of 'let's bring residents to these neighbourhoods', but then there is some kind of perversion…suddenly, they decide… 'no, no, *Cais do Sodré* has always been bohemian, it has always been bohemian'…And it is true, it has always been bohemian, but it always had residents! Now, the bohemian activity that has been brought here, with all these negative consequences, both at night, and in the day after…(…) People drinking in the street, broken bottles, …the next day is dantesque." (Resident MA, *São Paulo*, 25-44 group)

In fact, the concerns regarding security and cleanliness are often associated with nightlife users:

> "It is this feeling, Saturday morning and Sunday morning, that the neighbourhood as become, at least in my eyes, like garbage." (JR, *São Paulo*, 25-44 (2) group)

> "There is also a lot of drugs. (...). We see it sometimes...There used to be a certain... a certain sense of embarrassment, there were hidden places. Now, we see people in the benches of *São Paulo*

> Square sniffing cocaine." (Resident MA, *São Paulo*, 25-44 (2) group)
>
> "I am talking about my experience. (...) There are many people lately, using and trafficking drugs, and there have been robberies lately." (Resident A, *Medio Ponente*, 65+ group).

As for the major-theme concerning *facilities & economy*, it encompasses four other themes: shops and retail (AA), transport (NN), pedestrian streets (KK), and other infrastructure (NN). Most of the negative references are concerned with commercial activity, namely, the closing of essential shops like butchers, fishmongers, bakeries or general markets. For example, one resident in *São Paulo* said:

> "If you go to *São Paulo* Street, all the commercial establishments are deactivated. Some helped the others, right? (...) If we have a pharmacy, some people go to the pharmacy. If we have a market, others come to the market. Then the restaurants will gain...(Resident AP*, São Paulo*, 45-64 group)
>
> "Down there is the commercial area. Yes! There should be more shops...there used to be. There used to be so many commercial establishments...There are many closed shops now." (Resident LeO, *São Paulo*, 45-64 group)
>
> "The milk shop, the bakery...there used to be everything here...all that is over. We do not have any of those things. Where do we go now? Most of the times we go to big supermarkets. We have to come heavily stocked and then carry everything home." (Resident JMA, *Santo Estevão*, 45-64 group)
>
> "I would say that there was an enormous rise in the number of supermarkets. There is a great [range of goods on] offer. But regarding shops, the offer has been degraded in the last few years. I remember *Giovanni Torti* street, where there were beautiful windows…and now…(…) it is really bad. Therefore, the neighbourhood lost." Resident P., *Bassa Val Bisagno*, 45-64 group)

Even more important, although less frequent, are the references to job losses, especially in Genoa:

> "In the old days, it was not only the ones that were born here, but also the ones that came to find a job. Genoa was one of the first cities to lose the industry. It lost the jobs… in the sixties, and even before, came the ones that were searching for jobs….then slowly, very slowly, Ansaldo closed…so many factories closed[55]. So, there is not only the decrease in the number of births, but also the rise of emigrants." (Resident C, *Bassa Val Bisagno*, 45-64 group)

[55] *Ansaldo* and many of the other (Italsider, a Elsag, a Ficantiere) closed factories were shipbuilding factories, the main industrial production of the city of Genoa.

As for transport and pedestrian streets, there is a balance between negative and positive references and it was very much related to the different spatial positions that different neighbourhoods have within the city.

The major-theme concerned with *immeasurable assets* was composed by only two themes: cultural goods/aesthetic quality (FF), and sunlight, memories of old times, or proximity to water elements (JJ). Interestingly, both themes were mentioned more positively than negatively. For example, refereeing to the architecture, one resident in São Paulo said:

> "I love to stroll on this neighbourhood and see the architecture. I really do think that the architecture is very genuine"(Resident MC, *São Paulo*, 25-44 (2) group)

And a resident of *Santo Estevão*, while explaining why she decided to move to the neighbourhood, said:

> "…and then, it also has the *Tagus* river just here. The sea[56]…Sometimes when I feel like…ah...I go just there, to see the sea…" (Resident FerP, *Santo Estevão*, 45-64 group)

And in Genoa, a resident from *Bassa Val Bissagno* reported:

> "(…) the Genoese, if he has half an hour and he can walk, will always go straight to the sea. That is why, if you look carefully, the seaside in *Nervi* is always packed with people, the *Porto Antico* also…the Genoese always go to the seaside…we have to listen to the waves. We need that; it regenerates us, also psychologically." (Resident D, *Bassa val Bissagno*, 45-64 group).

> "Someone that lives in a seaside city, even if living in a area where 'there is no sea', knows that at the end of the street the sea is there, and it is important to know that it is there" (Resident D., *Bassa val Bissagno*, 45-64 group).

Another person replied:

> "Just like for you in Lisbon" (Resident P., *Bassa val Bissagno*, 45-64 group)

In *Bassa Val Bisagno*, while reporting the advantages of the neighbourhood, interestingly, resident P. mentioned the proximity to the seaside before other proximities, like his work location:

> "It is very central, I go walking to the seaside, to the centre…15 minutes are enough. I walk to work, which is in fact a great luxury (…)" (Resident P., Bassa Val Bisagno, 45-64 group).

Having access to good levels of sunlight was mentioned too, namely, in *Santo Estevão*:

> "*Alfama* was made in a certain way that you have sun all day long"[57] (Resident S., *Santo Estevão*, 65+ group, in a positive tone of voice).

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[56] In Lisbon, it is normal to refer to the River Tagus as sea, due to its wideness.

[57] *Santo Estevão* is located in a south-facing hill.

The references to *open and green spaces* were in some way triggered by the questions themselves. There is a general sense that there is lack of green spaces of good quality, especially in Genoa. In Lisbon, the lack of green spaces seemed to trigger few reactions, nor very strong emotions, but it seemed that often, the streets were referred to as replacement spaces. For example, in *Santo Estevão,* the following conversation took place in the 45-64 age group:

> FilP: As long as there is sun. Oh, Francisca, as long as there is sun! As soon as there is sun. April, May, June, July, August, September, October and November; if there is sun...
> FL: You have barbecues outside.
> FilP&JMA: You have barbecues outside.
> JMA: You have tables outside. You have people eating outside. Seating on the floor is necessary...
> Me: And outside is...
> FilP&JMA: The street, the street!
> JMA: Literally...
> Me: And is there any specific place in the neighbourhood, that...?
> JMA: No, no...It is the street...

Or another quote from a younger participant reporting the most positive aspect of living in *Santo Estevão*:

> "The most positive [aspect] is to see my children growing, playing in the street without any problems" (Resident B.A. *Santo Estevão* 25-45)

In Genoa, on the other hand, the references to open spaces were more focused on green spaces typologies or other more formal typologies of public spaces like squares:

> "This neighbourhood, compared with other neighbourhoods of Genoa, is certainly better, better because there are many more green spaces. There are neighbourhoods in Genoa where people live in the midst of concrete. Here…the environment…the air that you breathe is cleaner, and that means that the quality of life is better." (Resident OR. *Medio Ponente*, 65+ group)

> "If we go to *Albaro* the green spaces are clean, the lawns are cut. It is a matter of financial support...There is no money, so instead of coming once a month, they only come once a year to clean the gardens…Where my son lives, in *Pegli*, they have gardeners." (Resident SS. *Medio Ponente*, 65+ group)

> "Beside the problems that you mentioned, I would like to talk about (…) the lack of public spaces. Spaces for the children, that are freely accessible…we noticed the lack of public spaces when we closed this square to traffic, just in front of the Council. We closed it and it was immediately packed with hundreds of people, that in the afternoon meet here…and it is a small square" (Resident PV., *Bassa Val Bisagno*, 25-44 group)

Regarding *housing*, a key topic for neighbourhoods undergoing depopulation, there are general concerns regarding conservation of the buildings and the vacancy rates of them.

> "Only on the right side (of the square) there are people (living). On the left side, all the buildings are totally empty." (Resident TA, *São Paulo*, 25-44 repetition)

> "The most negative aspect of the neighbourhood is to see so many degraded buildings, and no one able to do a thing, because...no one does anything, right?" (Resident BA, *Santo Estevão*, 25-44 group)

In Genoa, the high population density caused by the post-Second World War influx of immigrants from the southern Italy resulted in the city extending extremely quickly and without a plan. In discussing this, three participants in the interviews referred to the many empty buildings, and the mismatch between the existing buildings and the size of the population and therefore, demolition as a potential solution.

> A: Here, they only considered the distances between buildings, without thinking of pathways, nothing…the roads were the ones opened for the construction works, nothing else. Without a plan…
>
> LC: The first regulatory plan in Genoa is from 1958.
>
> D: I sometimes make a joke: there is one solution for the urbanism in Genoa, in American style…subtraction…
>
> La: And what will you do to those living in the buildings? Will you keep them in hotels? In inns?
>
> V: But there are thousands of empty buildings...
>
> MT: But here?
>
> La: But they have an owner! Someone is the owner. What will you do? Expropriate them? Only if the Council buys them at a fair price.
>
> V: The technical solution I do not know…
> (*Medio Ponente*, 65+group)

However, besides this quote, there are not many other references to demolition as a potential solution; it does not seem to be a commonly discussed theme, nor an easy matter for residents to consider.

The general topics raised in the groups have been discussed, above, and have been exemplified through some quotes from the various participants who took part in the interviews. However, different cities, neighbourhoods and age groups, contribute differently to this overall picture (appendix B-II). For example, the positive evaluation of the theme *immeasurable assets* is mostly due to Lisbon residents' input, where it was quite constant for the three different age groups, and higher than for any of the discussions in Genoa. With regard to the theme *community,* it is interesting to notice that although it is the (overall) top ranked theme, both positively and negatively in Lisbon and Genoa together, when only the data collected in Genoa are considered, the *lack of facilities* is reported as being more detrimental to the neighbourhood than poor

neighbourliness, the presence of threatening groups, or inefficient political governance. It is particularly significant for Lisbon dwellers, more so than the Genoese, their concerns about *cleanliness* and *security*, and the presence of outsiders. Also, participants older than 65 years old more often mentioned the sub-theme "lack of policemen". However, for the major-theme *community*, the 45/65-year-olds in the Lisbon group assessed it more negatively than other groups. From the transcriptions of this specific case, possibly this is because some "new" residents of that group reported not feeling made welcome by the "born and raised" residents, a group that mentioned, particularly, the neighbourhood as being a part of their lives during the interviews. Interestingly, many residents were still considered, and considered themselves, as "new" residents even after ten or twelve years of residency. Other important sub-themes within the major theme of *community* are the presence of immigrant communities and the over-presence of tourists. In fact, feeling suspicious about new communities, or the sense of not being made welcome, were cited by the Lisbon groups. Also, security, was referred to in a negative tone, especially in the older Genoese groups and, surprisingly, in the younger Lisbon residents, especially the ones living in the *São Paulo* neighbourhood. This might be because, in São Paulo, the younger participants in the discussions, representative of a younger segment of the population living in that neighbourhood, are part of a slight gentrifying process, and therefore, do have higher average levels of education and income, when compared to the "born and raised" residents.

For those participants, the normal security standards are higher than those that are present in the *São Paulo* neighbourhood. Within this group, a young female mentioned that drug usage is visible during the day in unhidden, public open spaces and that she does not feel comfortable passing by such a situation, especially if she imagines herself in the possible/probable future situation of being the mother of a young child. This same participant and her husband organised a group of residents in the neighbourhood to fight for the protection of the neighbourhood and for stronger regulations regarding nightlife activities. Another member of that same discussion group, this time a young male adult, mentioned the fact that his car was damaged at least ten times in four years and that the presence of the police is rare and inefficient. The theme focusing on housing conditions is, unexpectedly, the fifth ranked theme when only considering the negative references. At least some of these neighbourhoods have high rates of dereliction, for example, *São Paulo* and *Santo Estevão*, have, respectively, 48,74% and 23,96% of buildings with such problems, although not necessarily high rates of demolition, but the seldom references to the possibility of demolition are only present in Genoa. The theme *public/open/green spaces* is referred to, overall, more often in Genoa than in Lisbon, however, the positive and negative references are more balanced in Genoa. This means that the few references to open and green spaces in Lisbon were mostly negative.

SUMMARY:

Through the use of focus groups, as a technique aimed at a better understanding of the main concerns of residents of depopulating neighbourhoods, it is possible to conclude that the *community* disruption and/or support and lack of *facilities* such as diversity of shops, schools, transport, etc., are two of the topics that raise more concern from respondents across different age groups. However, the groups in Lisbon reported this concern more strongly. Moreover, the lack of security and cleanliness was also strongly addressed as a problem in these four case-study neighbourhoods, more so in older participants from Genoa and younger participants from Lisbon. Other themes like access to sunlight and good views, or memories of old times were the ones more positively mentioned, especially due to participants from Lisbon, whereas general praise and/or concerns regarding green spaces were more prevalent in Genoa.

8.3. Conjoint Analysis

8.3.1 Attributes and Levels

The attributes chosen to feature in the study were based on the literature review, the research questions/objectives, the interviews with experts and stakeholders, and the focus groups with residents from depopulating neighbourhoods in Lisbon and Genoa. Regarding the main research interest, the key themes to be tested were the potential *buildings' construction/deconstruction*, the *demographic changes*, and the *potential expansion of open/green open spaces* (Figure 32). These *a priori* concerns set the first three attributes of the study: 'urban typology'; 'population density'; 'open and green spaces' typologies' (Figure 10, chapter 6).

Beside these *a priori* interests, the focus groups revealed a very high interest in topics concerning community, security and quality of open/green spaces. These topics were added, therefore, as attributes in order to have a broader comprehension of the priorities revealed by residents of depopulating environments *versus* non-depopulating environments and *versus* house searchers, where there is a wider scope of options and probably, a freer image of the ideal (less constrained by the availability principle).

Below, you can find a more detailed account of the different attributes and levels that were incorporated in the study.

Urban Typology and Population Density

As explored in the first chapters, these two attributes are traditionally regarded as strongly correlated since the industrialization period, when urban populations grew rapidly, and urban densities accompanied the process, producing a causal/consequential pattern. However, the

shrinking cities phenomenon inserts a new relation between these attributes, where urban typologies that permit high urban densities are not fully occupied. In some situations, as seen in Chapter 3, there is a quick adjustment of the urban fabric where demolitions are rapidly brought forward. In some other situations, the decrease in urban population does not trigger the same responses, so it is possible to have, simultaneously, high urban densities and lower population concentrations for some periods of time, proving the possibility of the non-correlated situation of the two attributes. For that reason, in this study, they are presented as two distinct attributes. This fact can permit a better understanding of the participants' reactions to these realities. There might be an approximation to the paradigms of high and low urban densities, with participants that value high population densities also valuing tighter urban typologies, or this relation might be non-existent. Moreover, since it would be impossible to present to participants all the different possible urban typologies, there was a reduction to only four levels, from the potentially denser, to the potentially least dense: (1) 'tall buildings and narrow streets', (2) 'medium-size buildings and narrow streets'; (3) 'medium-size buildings and wide streets', (4) detached houses and wide streets'. Also the description regarding 'population density' is gradual, this time, in a more general sense, from (1) 'low', to 'medium', and to (3) 'high'.

Open and Green Spaces' Typology and Quality

As mentioned previously, and specifically in Chapter 4, the history of depopulation has been associated with urban adaptation to tighter urban fabrics and enclosed/protected open/green spaces and the expansion of wild spaces. This seems to indicate that population shrinkage naturally produces a tendency to population re-concentration, and not to a sparse use of the space. In order to understand if depopulation in contemporary, shrinking, urban environments can trigger people's greater attraction to enclosed green and natural spaces, we chose three levels for the attribute 'open/green spaces' typology': one was a public space of small dimensions, the second was private or semi-private, and the third, wide and public. All three had some green elements so that no distinction would be made between levels that had more greenness than others. The exact descriptions of each level were (1) 'squares or small gardens'; (2) 'private or semi-private gardens/plots'; and (3) 'big public park'. The description of the attribute 'open/green spaces' quality' was more generic, like the attribute 'population density', and was graded from (1) low, to (2) medium, to (3) high.

Community

The attribute 'community' was added after taking into consideration the results from the focus groups. Themes such as neighbours greeting each other, the presence of strangers, or neighbours' supportiveness, were mentioned often (see point 8.2). Since it was so strongly present in the discussions between residents, it was added to the conjoint study. The exact way in which it was presented was, again, inspired by particular quotes of focus group members, namely, (1) "my

neighbours are my friends", (2) "my neighbours greet me and I greet them", "I do not know my neighbours". To simplify matters, in this thesis, the levels are sometimes described as: (1) 'neighbours as friends', (2) 'neighbours greet each other', and (3) 'neighbours as strangers'.

Security

Security was also a theme that arose at the focus groups and was an important concern for participants. However, to avoid that as a negative description added a major unbalancing factor in the study, this attribute was described only as having two levels, one that described the hypothetical neighbourhood as being (1) 'always safe', and the other as being (2) 'usually safe'. Also, one of the recommendations that the literature on Conjoint Analysis does is to incorporate in the study non-correlated attributes (Danaher 1997). In the case of this study, there was a special attention to this factor. For example, the addition of the attribute cleanliness wouldn't bring probably added information to the study, since this is an attribute known to be correlated with the sense of security as described by the broken windows theory (McKee 2014).

Also, worth mention are the attributes 'security' and 'open/green spaces' quality' which were excluded from the 'build your own' question of the ACBC study due to their qualitative order, i.e., the responses were considered "no brainers".

Other Attributes

There were other attributes mentioned in the focus groups that were potentially relevant to people's general preferences with regard to neighbourhoods. However, their incorporation would have meant an overwhelming task for respondents, therefore, they were excluded from the ACBC study but incorporated in two final questions (point 8.3.2.6). Those attributes are: (1) 'cleanliness of the streets', (2) 'distance to green spaces', (3) 'views from my window'; (4) 'commercial proximity, diversity and quality', (5) 'transport network'.

The image below summarizes the different attributes and corresponding levels used in the ACBC

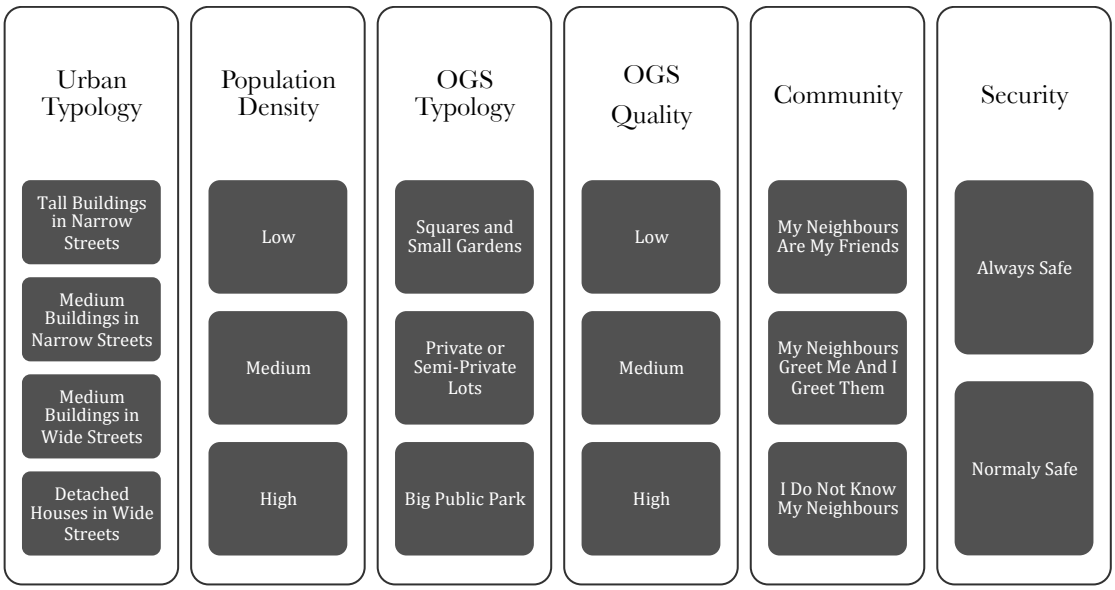


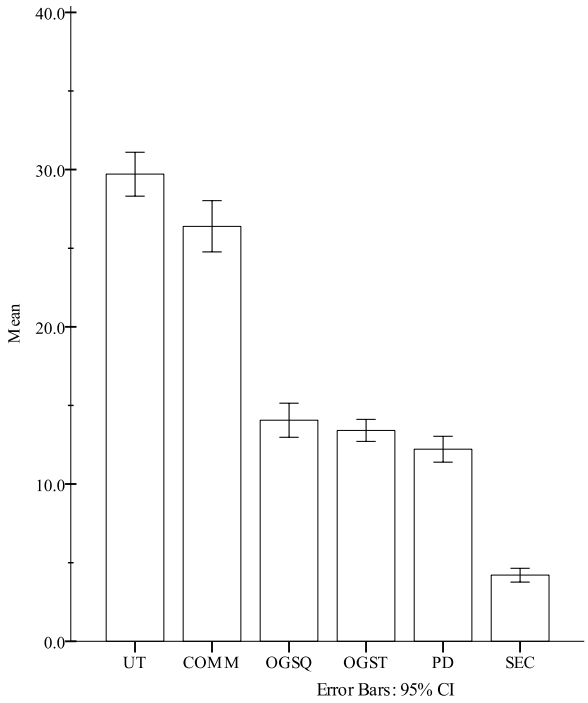
Figure 32. Attributes and corresponding levels used in the choice-based study.

study (Figure 32).

This scheme of attributes and levels produces 648 possible combinations (4*3*3*3*3*2/1!=648) in a full factorial design. The number of combinations/scenarios could have been reduced by an orthogonal main effect design (SPSS) to a more manageable number of scenarios; however, in this research, this strategy was not necessary since ACBC reduces the number of potential scenarios in the first sections of the questionnaire (point 7.5.3).

8.3.2 Findings

At a macro level, the results reveal that the attributes 'urban typology' (UT) and 'community' (COMM) are the highest in importance of the six attributes. The attribute 'open and green space quality' (OGSQ) is the third ranked attribute, almost equal with the attribute 'open and green space typology' (OGST), and closely followed by the attribute 'population density' (PD) (Figure 33). At the bottom of the scale is the attribute 'security' (SEC), with the lowest score in terms of its importance.



(Note: UT – Urban Typology; COMM – Community; OGSQ – Open/Green Spaces' Quality; OGST - Open/Green Spaces' Typology; PD – Population Density; SEC – Security).

Figure 33. Attributes' average relative importance.

The fact that security is at the bottom of the scale is most probably due to the fact that both levels presented within this attribute were positive. The fact that security occupies bottom place may be due to the forementioned levels effect. i.e., both levels presented in this attribute were positive. The foundations for this choice lay in the fact that 'Security' was among the most important issues raised in the focus groups and therefore, there was not only an expected predominance of this attribute, but also, a concern that a negative level within this attribute could work as an obvious decision for respondents. This measure might have been excessively cautious and probably for this reason, the attribute 'Security' is more marginal than was expected.

Of the six attributes, the ones contributing more, in terms of the choice between different hypothetical scenarios of neighbourhoods, are the two first ones: 'urban typology' and 'community' since they present a higher difference between the mean utilities of their different levels. As already discussed previously (point 7.5), importances represent the range between the utility score for the most valued and least valued level within the one attribute. Although these values are not absolute, they are critical to a better understanding of the role/weight that each attribute has in respondents' decision making regarding their ideal place in which to live. Moreover, the utilities of each level of an attribute can be used to better understand which

particular changes would be more effective in raising the attractiveness of a neighbourhood and/or the satisfaction of its inhabitants in living there.

The graphic, below, shows the average utility for each level of all the attributes obtained in this study, from the levels of attributes with scores showing a higher importance, to those of lower importance, i.e., from 'urban typology' levels to 'security' levels.

A closer look at the different levels of each attribute gives a broader idea of respondents' preferences (Figure 34):

Urban Typology: the two first levels present a negative utility mean score and the two last ones, a positive one, indicating that the presence of 'wide streets' is a crucial factor for preference within this attribute. It is worth highlighting, again, that most respondents who took part in this study live in very dense urban settlements[58].

Community: for the attribute 'community', a scenario where respondents would not know their neighbours is the least preferred level. Having neighbours as friends was ranked highest in importance for all levels of 'community' and, indeed, for all levels of all the attributes.

Green/Open spaces' Quality: this attribute is one of two that presents a ranking scale – low, medium, high – and, as expected, the 'low quality' scenario is the least preferred. It is worth re-emphasising, however, that the relative difference between 'low' and 'medium' quality is more important than the difference between 'medium' and 'high' quality.

Green/Open spaces' Typology: the greatest preference in this attribute is 'squares and small gardens', which is almost on a par with 'big public park'; and the least is 'private, or semi-private, plots ', i.e., the idea of owning a private place did not seem to be very attractive to respondents.

Population Density: this attribute also had a ranking scale – low, medium, high – however, no preferences were expected, as was the case with the previous example. Analysis of the utility scores demonstrates that the medium level is preferred the most and the two extreme levels both have negative utility scores where a 'high density' level is, by a small margin, the most negative of the three.

Security: as already mentioned, this attribute only presented two levels – 'always safe' and 'usually safe' – none of them carrying a clearly negative connotation. Probably for this reason, 'security' is the attribute that scored relatively low in importance, i.e., where utility levels had a smaller range of values.

[58] An average of 5429 hab/Km2 in Lisbon (Pordata, 2011), and 2450 hab/Km2 in Genoa (Urbistat, 2011).

The reading of the graphic (Figure 34) also allows us to conclude that it is more important to move from a neighbourhood where you 'greet your neighbours' to a neighbourhood where your 'neighbours are your friends', than to move from an 'always safe' neighbourhood to a 'usually safe' neighbourhood, for this sample. Although this comparison has four generally positive levels, having a strong community, and a trustworthy social network, seems to be more important than always feeling safe in your neighbourhood. Moreover, changing from not knowing your neighbours to merely greeting them is the most important change in this study, meaning that it is the change with more impact[59].

Another relevant comparison is between the levels for the attribute 'open and green spaces' quality and typology'. For example, it is more relevant to change from an open/green space of 'low' to 'medium' quality than any change between different levels of open/green space typology. However, it seems to be more important to switch, for example, from a private plot (the typology with lower utility scores) to a 'square/small garden' or to a 'big public park', than from a general open/green space of 'medium' to 'high' quality (Figure 34).

[59] The analysis that is presented in the following points corroborate the preponderant role that the attribute 'community' seems to have in this particular study.

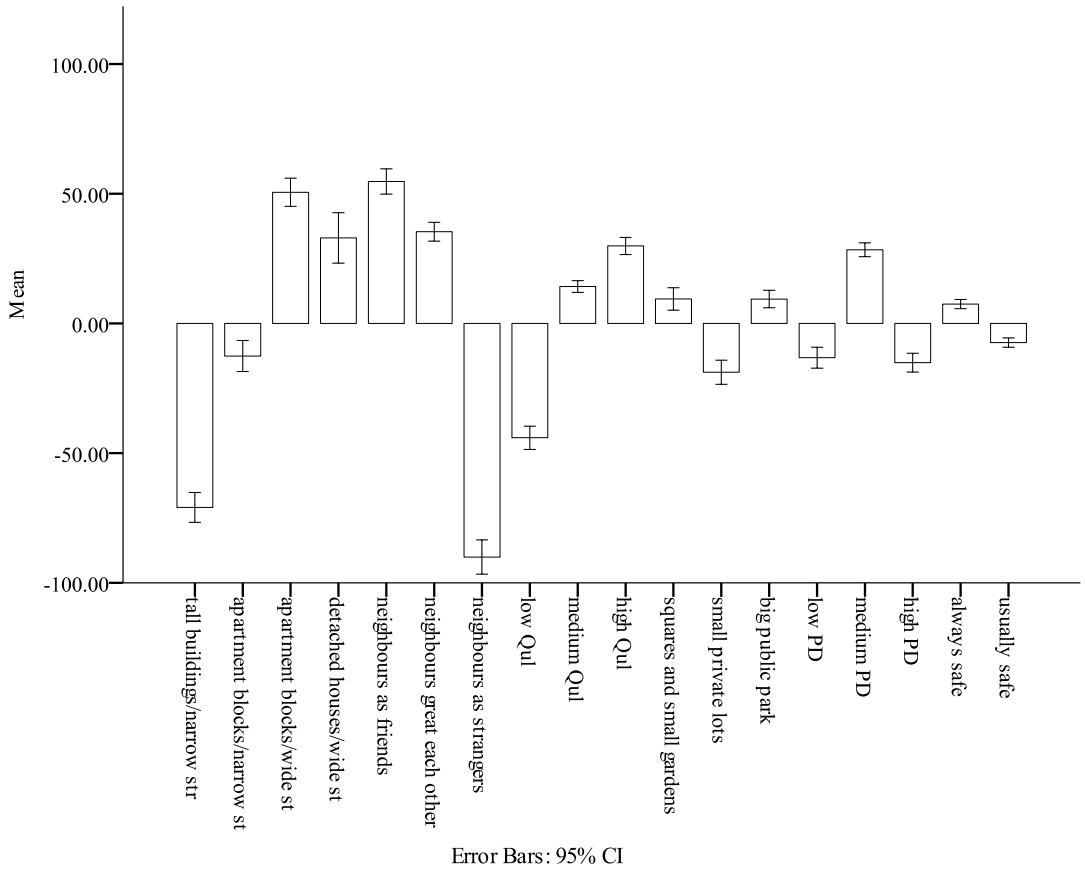


Figure 34. Mean zero-centered utilities, per level of attribute (ranked by respondents from their greatest importance, to their lowest).

As described in point 7.5, utilities can be problematic outputs to analyse, to compare, and to communicate in non-academic environments, since they do not permit ratio analysis (Orme, 2010). The shares of preferences, however, do allow these ratio comparisons and can be more useful outputs. Shares of preferences are drawn from the comparison of the preferences between a number of different scenarios, or products in Sawtooth's language, computed by Sawtooth Market Tool or SMRT software. In the case of this research, four branches of variation were tested: (1) urban typology, (2) population density, (3) open/green spaces typology and (4) community[60]. For example, in the branch concerned with urban typology, there were four scenarios being tested, one scenario per level of attribute, and all other attributes remained constant. The constant levels of the attributes not being tested were chosen with consideration to the levels generally more preferred in each attribute. So, in fact, each scenario is close to a general ideal scenario, except for the varying attribute, in this case, the attribute 'urban typology'.

[60] SEC and OGSQ were excluded due to their qualitative nature and gradation.

The graphic below shows the share of preferences for the studied levels in Genoa and Lisbon (Figures 35 and 36).

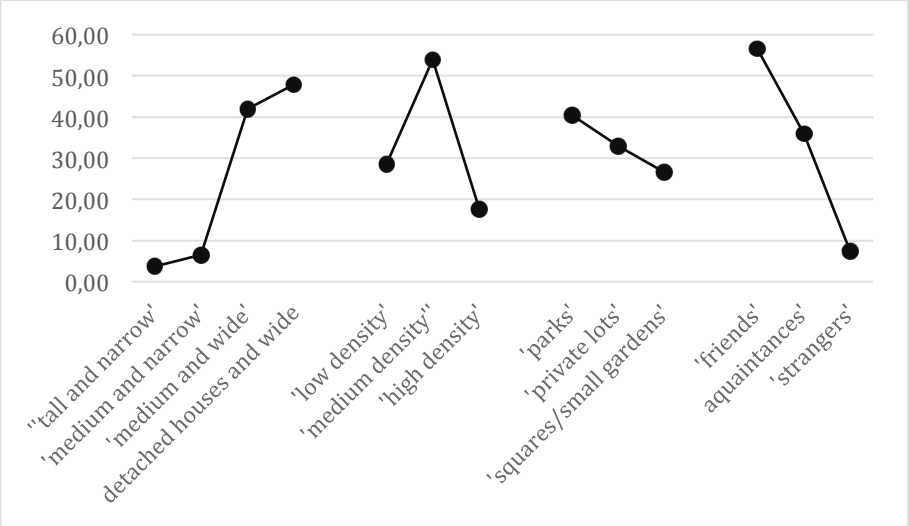


Figure 35. Share of preferences/Genoa

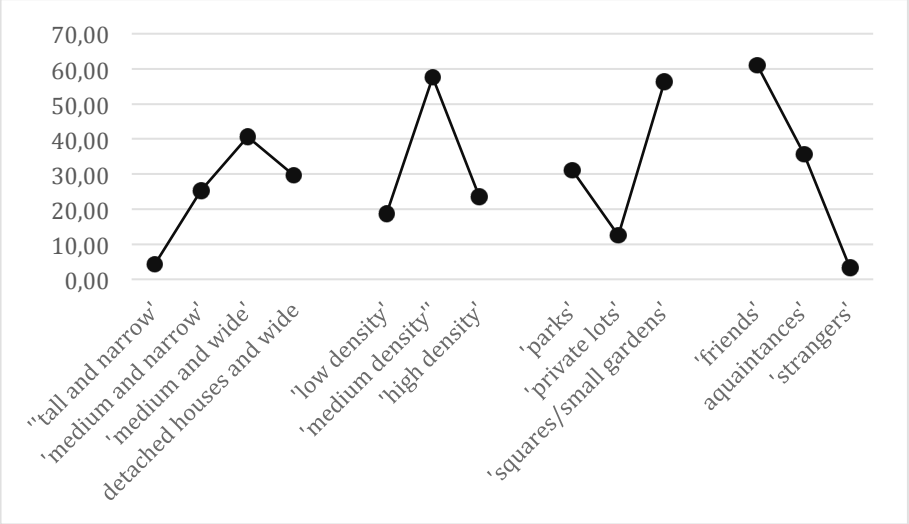
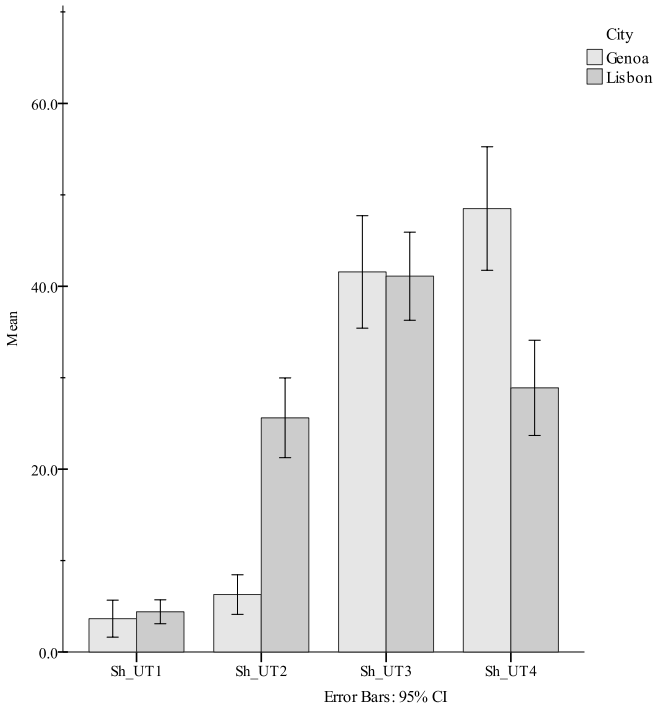


Figure 36. Share of preferences/Lisbon

The attributes 'population density' and 'community' follow a similar trend in both cities. However, there are particular differences regarding the attributes 'urban typology' and 'open/green space typology'. In Genoa, the two levels described by narrow streets present low preference scores, whereas the levels described by wide streets present high preference scores, particularly, the level 'detached houses and wide streets'. In Lisbon, the more preferred level is 'medium size buildings and wide streets', with the third and fourth levels having lower preferences.

As for the attribute 'open/green space typology', although in Genoa there is a decrease in the scale of preferences, from 'big public park' to the level 'squares and small gardens', in the Lisbon sample, participants seem to value less the 'private or semi-private' scenario and more the 'squares and small gardens' scenario. Also the typology of detached houses doesn't seem to be popular in Lisbon's subsample.

Below there is a more detailed overview by city of the different branches of scenario analysis (sensitive analysis). The first one concerns the attribute 'urban typology' and the overall analysis shows that the two levels that are preferred the most are those describing lower urban densities. These results are quite stable when divided between the three groups of the variable 'dwelling groups'; they did not present any significant differences between any of the sub-groups. However, when analysing the data according to city of origin, the results present significant differences (Figure 37).



Sh_UT1: Scenario with the UT level1: 'tall buildings and narrow streets'

Sh_UT2: Scenario with the UT level2: 'medium size buildings and narrow streets'

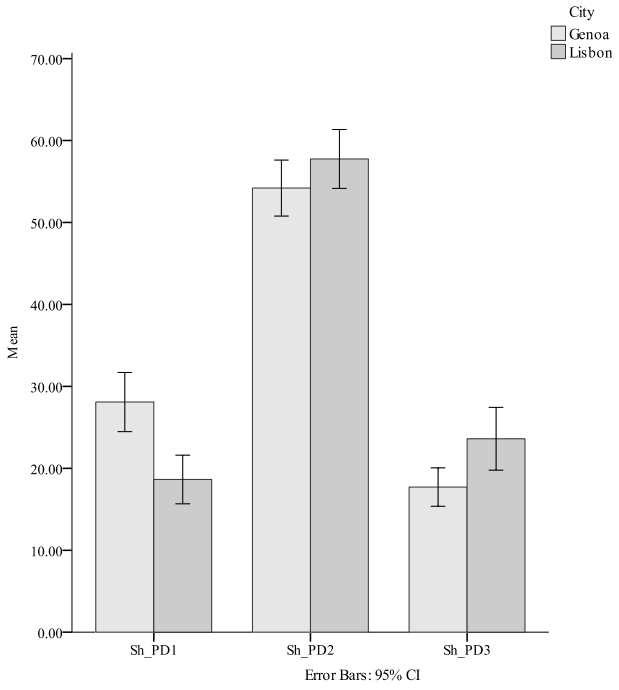
Sh_UT3: Scenario with the UT level3: 'medium size buildings and wide streets'

Sh_UT4: Scenario with the UT level4: 'detached houses and wide streets'

Figure 37. Share of preferences across the four levels for the attribute UT, by city.

In Genoa, there is a sharp contrast between the two first levels, characterised by 'narrow streets', and the two remaining levels that are characterized by 'wide streets', whereas in Lisbon, the second and third levels are not significantly different, and the most preferred level is 'medium-size buildings with wide streets', which was significantly different from the other options.

In the second phase of comparative scenarios, the variation was concentrated on the levels of the attribute 'population density'. From the results in the table and graphs, below, it is clear that the level 'medium density' is the one preferred the most. This result is consistent across the cities and dwelling groups (Figure 38).



Sh_PD1: Scenario with the PD level1: 'low population density'

Sh_PD2: Scenario with the PD level2: 'medium population density'

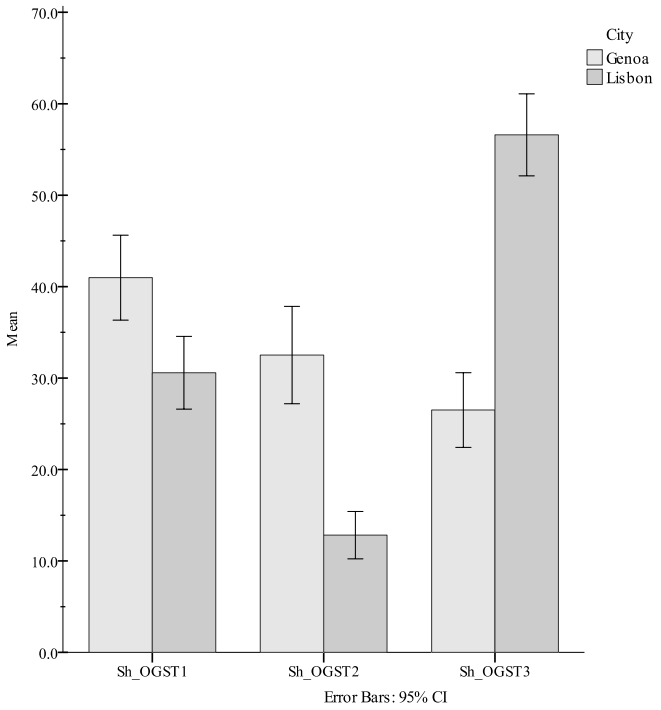
Sh_PD3: Scenario with the PD level3: 'high population density'

Figure 38. Share of preferences across the three levels for the attribute PD, by city.

But again, there are significant differences between the ranking values of the two least preferred levels in Genoa and Lisbon. In Genoa, low density is preferred, significantly, more than high density, whereas in Lisbon, these two levels are closely ranked.

The third branch of variation compared the three levels of the attribute 'open/green spaces typology'. The results show that, surprisingly, the level referring to 'private lots' is the least preferred of the three options. 'Public parks' and 'squares, and small gardens' were given equivalent rankings. The subgroup of Genoese and Lisbon participants did reveal significant differences relative to their preferences for all the levels of this attribute. In Lisbon, the level that is preferred the most is 'squares and small gardens', and the least is 'private lots', while 'big public parks' is ranked just above that. In Genoa, there are fewer discrepancies in relation to the preferences regarding levels of 'open/green space' typology', meaning that on average, the preferences between the different levels are less varied. The level that is preferred the most is 'big

public park', followed by 'private lots', and the least preferred level is 'squares and small gardens'. So with regard to the attribute 'open and green space typology', the two cities have quite opposite results (Figure 39).



Sh_OGST1: Scenario with the OGST level1: 'squares and small gardens'

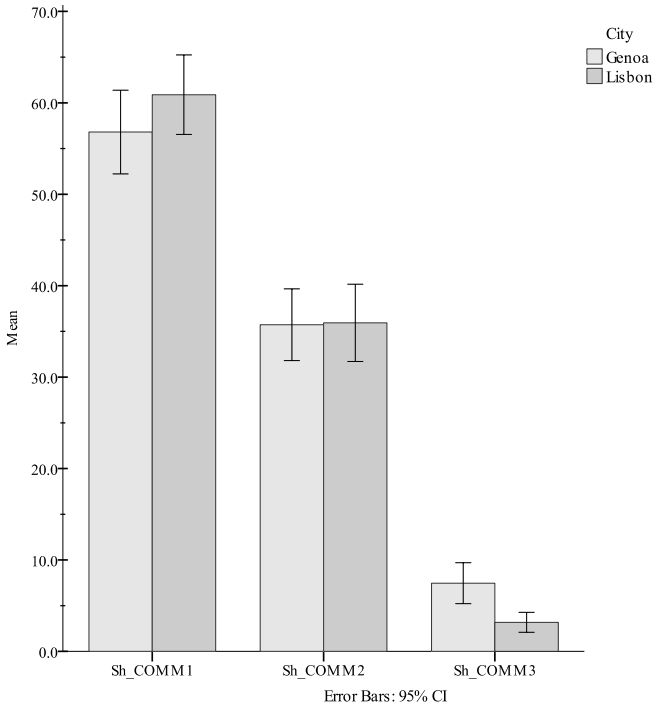
Sh_OGST2: Scenario with the OGST level2: 'private or semi-private lots'

Sh_OGST3: Scenario with the OGST level3: 'big public park'

Figure 39. Share of preferences across the three levels for the attribute 'Open/Green Spaces' Typology', by city.

Finally, the fourth variation concerns the attribute 'community'. The levels 'my neighbours are my friends' and 'I greet my neighbours' show a closer and more positive share of preferences, whereas, the level 'I do not know my neighbours' is clearly the least preferred one.

These results are consistent across dwelling groups. In the case of the different cities, only the level 'I do not know my neighbours/strangers', is preferred significantly less in Lisbon than in Genoa. The other two levels do not present significant differences between the two cities (Figure 40).



Sh_COMM1: Scenario with the COMM level1: 'my neighbours are my friends'

Sh_COMM2: Scenario with the COMM level2: 'I greet my neighbours and they great me'

Sh_COMM3: Scenario with the COMM level3: 'I do not know my neighbours'

Figure 40. Share of preferences across the three levels for the attribute Community, by city.

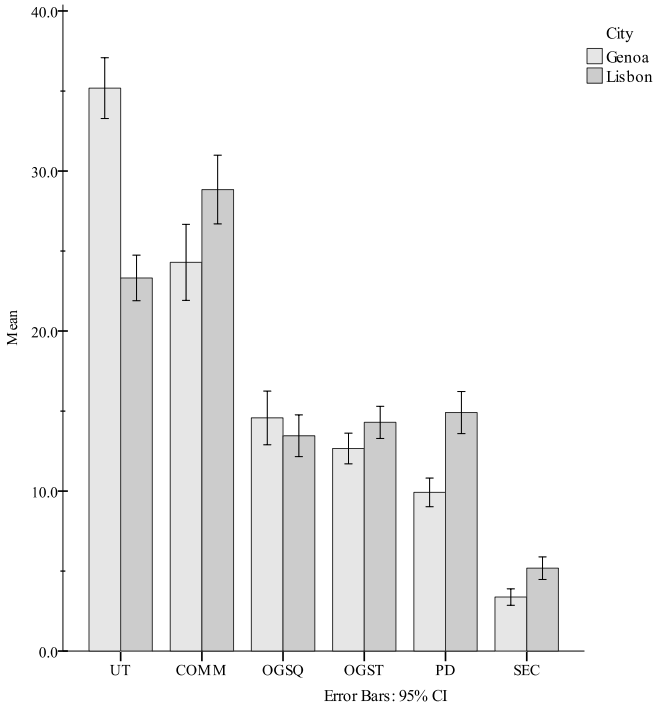
8.3.2.1 Relative Importances across Different Subgroups

To understand the significant differences between different sub-samples, a series of statistical tests were put forward. Since the importance of most attributes do not show a normal distribution[61] (Appendix C-II-3) in the sample as a whole, we began by testing the data using non-parametric tests: Mann Whitney for differences between two independent samples like gender, city, and having, or not, children; and Kruskal Wallis for differences between more than two independent samples, for example, age group, education levels, and dwelling group. Although the last criterion – dwelling group - is the one that is particularly relevant to the research objectives, it is also crucial to understand which other factors might influence the participants' responses, namely, demographic or socio-economic factors, and if depopulation still

[61] A normal distribution is characterised by a symmetrical distribution of the data, presenting a bell-shape curve graphic. The distributions of the six attributes were tested using Shapiro-Wilk and Kolmogov-Smirnov tests. None of the attributes showed a normal distributed sample, but since these tests are considerably strict, other means of analysis were put forward, namely, the skewness intervals tests (z-scores). These other tests confirmed that none of the attributes in the whole sample presents a normal distribution, however, when considering the sub-samples of Lisbon and Genoa, the attribute 'community' is normal distributed in both samples. Plus the attribute 'urban typology' is normal distributed in the Genoa sub-sample, and the attribute 'open and green spaces typology' is normally distributed in the Lisbon sub-sample.

remains relevant after controlling for these other variables. Therefore, besides understanding differences in the average importance of different sub-samples, some relevant data were also analysed through regression tests, such as multiple regression when applicable.

The variable 'city of residence' – Lisbon/Genoa - presented significant differences in all attributes, except for 'open and green spaces quality'. Although the neighbourhoods chosen in each city shared similar characteristics, like high urban densities, high percentage of immigrants and residents with low education levels, the city of residence seems to be a considerable difference in the majority of the attributes. More specifically, the results show that, on average, for Genoese citizens the attribute 'urban typology' is more important, but for participants living in Lisbon, the attributes 'population density', 'open and green spaces typology', and 'security' are more important than for residents in Genoa. On obtaining these results, and given the significant difference in the two Lisbon and Genoese sub-groups, they were then subject to all subsequent statistical tests separately (Figure 41 and 42).



Note: UT – Urban Typology; COMM – Community; OGSQ – Open/Green Spaces' Quality; OGST - Open/Green Spaces' Typology; PD – Population Density; SEC – Security.

Figure 41. The average importance given to each attribute in the whole sample, by city.

(whole sample) City		**UT**	**PD**	**OGST**	**OGSQ**	**COMM**	**SEC**
Mean Ranks	Ge (N=152)	179,82	112,49	131,27	140,64	128,61	19549,00
	Lx (N=130)	96,69	175,42	153,46	142,50	156,57	20354,00
Median	Ge (N=152)	35,74	8,65	12,06	11,25	23,23	2,41
	Lx (N=130)	21,90	13,12	13,89	12,05	28,95	4,41
Mann Whitney U		4055	5470,5	8325,5	9749,5	7921	6663
Z		-8,53	-6,46	-2,28	-0,19	-2,87	-4,71
r (Z/√N)		-0,51	-0,38	-0,14	-0,01	-0,17	-0,28
Sig. 2 tailed		**0,00**	**0,00**	**0,02**	0,85	**0,00**	**0,00**

Figure 42. Testing for differences in the importances of the six attributes in the two cities: Mann-Whitney test.

With regard to **gender**, there were no significant differences in the average importance of any attribute in the whole sample, plus in Lisbon and Genoa when considered separately, however, the presence of children in a household resulted in significant differences in the average importance for the attributes 'open and green spaces quality' and 'community'. Participants living **with children in the household** valued significantly more the attribute 'open and green space quality', and significantly less the attribute 'community' in the whole sample (Figure 43). In Genoa, the presence of children in the household is not associated with any change in the importance of any of the attributes, but in Lisbon, the attribute 'open and green space quality' is significantly more important (Mdn=15,50: U= 1195: z= -2,17: p=0,03: r= -0,13) for participants living with children up to the ages of 12 years old (Appendix C-II-3).

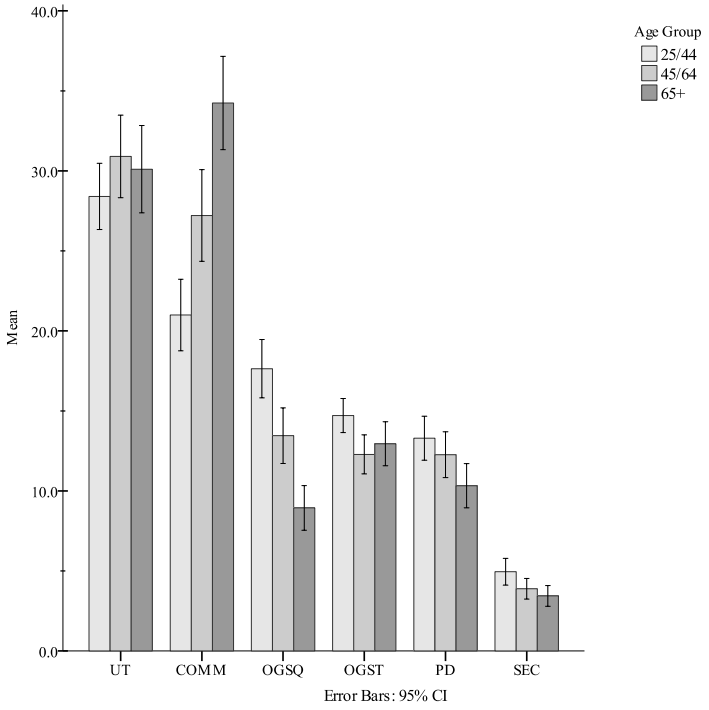
(whole sample) Children		**UT**	**PD**	**OGST**	**OGSQ**	**COMM**	**SEC**
Mean Rank	without (N=221)	141,10	139,80	140,32	134,62	146,76	138,84
	with (N=61)	142,94	147,67	145,77	166,41	122,43	151,13
Median	without (N=221)	29,25	10,27	13,03	10,79	27,10	3,19
	with (N=61)	27,27	12,16	13,39	15,66	22,35	3,63
Mann Whitney U		6652,50	6364,00	6480,00	5221,00	5577,00	6153,00
Z		-0,16	-0,67	-0,46	-2,70	-2,06	-1,04
r (Z/√N)		-0,01	-0,04	-0,03	-0,16	-0,12	-0,06
Sig. 2 tailed		0,88	0,50	0,64	**0,01**	**0,04**	0,30

Figure 43. Testing for differences in the importances of the six attributes between participants living with or without children (whole sample): Mann-Whitney test.

With regard to age, education and dwelling groups, where each variable has more than two possible values, the non-parametric tests (Kruskal Wallis) presented the following significant differences in the whole sample:

Age significantly affected the average importance of the attributes 'population density'; 'open and green spaces typologies'; 'open and green spaces quality'; and 'community'. The attributes 'urban typology' and 'security' did not present significant differences between participants in the different age groups. Jonckheere's test revealed a significant trend in the data, namely, that the older the participants are, the more they value the attribute community; whereas the younger

participants value more other attributes, like 'population density'; 'open and green spaces quality'; and 'open and green spaces' typology. In Genoa's sample, also, older participants value more the attribute 'community' J= 5109,5, z= 4,73, r= 0,38, and less the two attributes concerned with green spaces (OGST, J= 3131,5, z= -2,39, r= -0,19, *p*=0,02; and OGSQ, J= 2339,0, z=-4,76, r=-0,38, *p*=0,00), however, there is no detectable differences regarding the importance that is given to the attribute population density across different age groups. The data collected in Lisbon corroborate that older participants value significantly more the attribute 'community' J= 3718, z= 4,66, r= 0,41, *p*=0,00, and significantly less the attribute 'open and green space quality', J= 1700, z= -4,18, r= -0,37, *p*=0,00, and 'population density', J= 1933,50, z=-3,16, r=-0,28, *p*=0,00, but there are is no evidence of differences regarding the attribute 'open and green spaces' typology' (Figure 44 and 45, Appendix C-II-3).



Note: UT – Urban Typology; COMM – Community; OGSQ – Open/Green Spaces' Quality; OGST - Open/Green Spaces' Typology; PD – Population Density; SEC – Security.

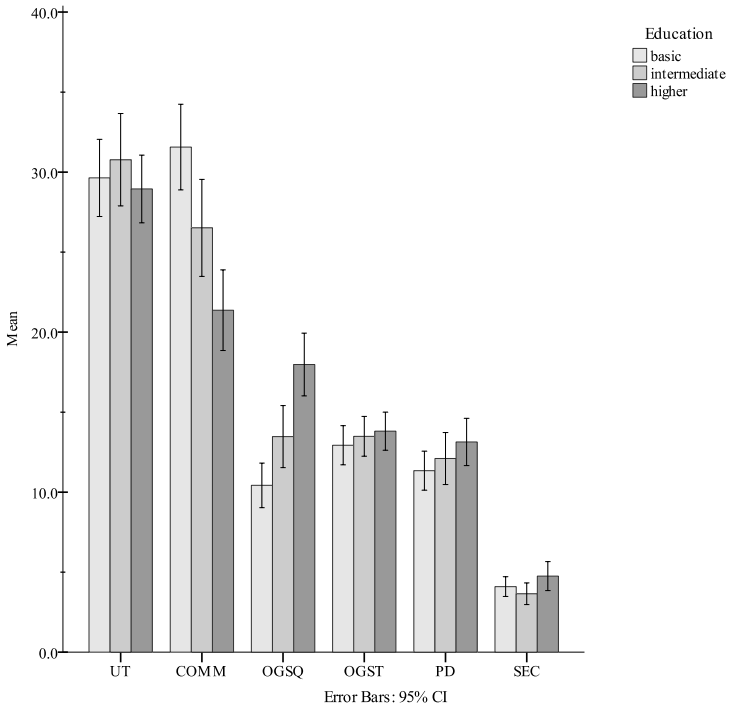
Figure 44. The average importance given to each attribute in the whole sample, by age group.

(whole sample) Age		**UT**	**PD**	**OGST**	**OGSQ**	**COMM**	**SEC**
Mean Ranks	25-44 (N=113)	133,04	156,17	160,07	173,26	110,01	154,24
	45-65 (N=102)	149,59	140,72	125,43	136,92	145,19	135,47
	65+ (N=67)	143,45	117,95	134,65	94,90	188,99	129,20
Chi-Square (H)	(df=2)	2,26	9,26	10,30	39,34	39,77	4,84
Sig.		0,32	**0,01**	**0,01**	**0,00**	**0,00**	0,09
Jonckheere (J)		13758,50	10748,50	11123,50	8335,50	17554,50	11390,50
z (St J-T test)		1,07	-3,00	-2,49	-6,26	6,20	-2,13
r Jonckheere		0,06	-0,18	-0,15	-0,37	0,37	-0,13
Sig. 2 tailed		0,28	0,00	0,01	0,00	0,00	0,03
		UT	**PD**	**OGST**	**OGSQ**	**COMM**	**SEC**
Mann Whitney U		3492	2766,5	3070	1704,5	1635	3097
Z Mann W (25/44 vs 65+)		-0,869	-3,02	-2,12	-6,16	-6,36	-2,04
r (25/44 vs 65+)		-0,05	-0,18	-0,13	-0,37	-0,38	-0,12
Sig. 2 tailed		0,39	**0,00**	0,03	**0,00**	**0,00**	0,04
Mann Whitney U		5100,5	5124	4380	4255	4355,5	5012
Z Mann W (25/44 vs 45/65)		-1,45	-1,40	-3,04	-3,31	-3,09	-1,65
r (25/44 vs 45/65)		-0,09	-0,08	-0,18	-0,20	-0,18	-0,10
Sig. 2 tailed		0,15	0,16	**0,00**	**0,00**	**0,00**	0,10
Mann Whitney U		3254	2858	3160,5	2376	2386	3281,5
Z Mann W (45/65 vs 65+)		-0,52	-1,80	-0,82	-3,35	-3,31	-0,44
r (45/65 vs 65+)		-0,04	-0,14	-0,06	-0,26	-0,25	-0,03
Sig. 2 tailed		0,60	0,07	0,41	**0,00**	**0,00**	0,66

Figure 45. The average importance given to each attribute in the whole sample, by age group: Kruskal Wallis and Mann Whitney tests.

Education levels also present significant differences in the average importance of some attributes, namely, in the 'open and green spaces' quality'; and 'community'. The Jonckheere's test revealed that the more educated participants gave a higher average importance to the attribute 'open and green spaces' quality, and a lower average importance to the attribute 'community'. Some follow-up Mann-Whitney tests revealed that although the attribute 'community' is viewed significantly differently across all three groups of different educational levels, the attribute 'open and green spaces' quality' is only significantly different between participants with basic and higher education levels (Figure 46 and 47).

In Genoa's sub-sample, also, the attributes 'community', H(2)= 12,69, p=0,00, and 'open/green spaces' quality', H(2)= 22,70, p=0,00, vary significantly depending on the different educational levels of the groups. The trends indicated by Jonckheere's test reveal that the more educated participants place a higher average importance on the attribute 'open and green spaces quality', J= 5262, z= 4,82 , r= 0,39, p=0,00, and conversely, a lower average importance on the attribute 'community', J= 2797,5 , z= -3,53, r= -0,29, p=0,00. The Mann-Whitney follow-up tests revealed that these differences are mainly explained by the comparison between participants with basic vs. higher education levels.



Note: UT – Urban Typology; COMM – Community; OGSQ – Open/Green Spaces' Quality; OGST - Open/Green Spaces' Typology; PD – Population Density; SEC – Security.

Figure 46. The average importance given to each attribute in the whole sample, by education level.

(whole sample) Education		**UT**	**PD**	**OGST**	**OGSQ**	**COMM**	**SEC**
Mean Ranks	basic (N=98)	140,94	132,63	132,68	109,95	172,80	144,73
	inter. (N=81)	146,94	138,55	144,56	137,02	141,51	130,29
	higher (N=103)	137,76	152,26	147,49	175,04	111,71	147,24
Chi-Square (H)	(df=2)	0,58	3,06	1,82	32,33	28,18	2,20
Sig.		0,75	0,22	0,40	**0,00**	**0,00**	0,33
Jonckheere (J)		12973,00	14468,50	14141,50	17422,50	9207,50	13351,50
z (St_J-T test)		-0,29	1,72	1,28	5,69	-5,35	0,22
r_Jonckheere		-0,02	0,10	0,08	0,34	-0,32	0,01
Sig. 2 tailed		0,77	0,09	0,20	**0,00**	**0,00**	0,83
		UT	**PD**	**OGST**	**OGSQ**	**COMM**	**SEC**
Mann Whitney U (basic vs higher)		4931,00	4350,00	4520,00	2736,00	2891,50	4936,00
Z Mann W (basic vs higher)		-0,28	-1,69	-1,28	-5,61	-5,23	-0,27
r (basic vs higher)		-0,02	-0,13	-0,10	-0,43	-0,40	-0,02
Sig. 2 tailed		0,78	0,09	0,20	**0,00**	**0,00**	0,79
Mann Whitney U		3798	3796,5	3631,5	3188,5	3057	3541,5
Z Mann W (basic vs intermediate)		-0,50	-0,50	-0,98	-2,26	-2,64	-1,24
r (basic vs intermediate)		-0,04	-0,04	-0,08	-0,17	-0,20	-0,10
Sig. 2 tailed		0,62	0,62	0,33	0,02	**0,01**	0,22
Mann Whitney U (basic vs intermediate)		3798	3796,5	3631,5	3188,5	3057	3541,5
Z Mann W (intermediate vs. higher)		-0,50	-0,50	-0,98	-2,26	-2,64	-1,24
r (intermediate vs. higher)		-0,04	-0,04	-0,07	-0,17	-0,19	-0,09
Sig. 2 tailed		0,62	0,62	0,33	0,02	**0,01**	0,22

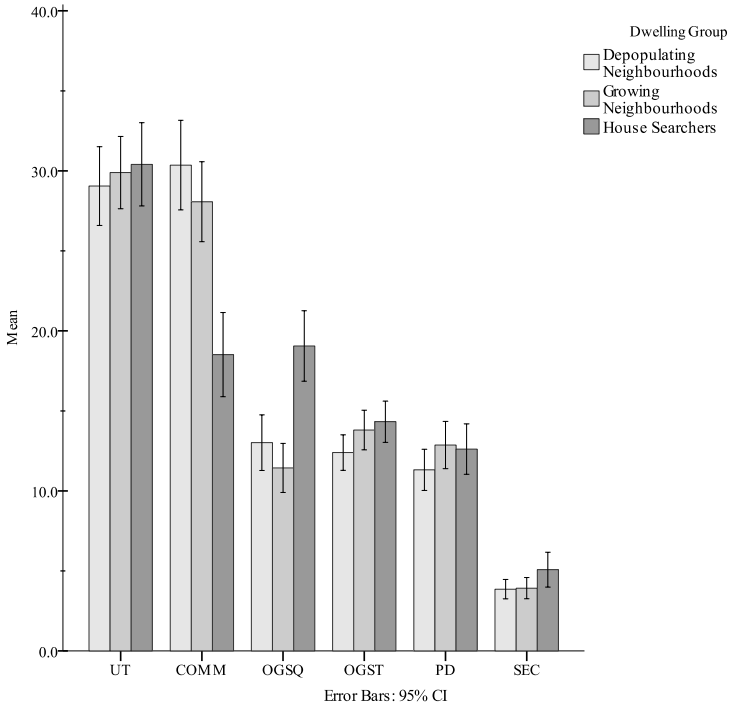
Figure 47. The average importance given to each attribute in the whole sample, by education level: Kruskal Wallis and Mann Whitney tests.

In fact, the comparison between participants with basic vs. intermediate education levels does not reveal any significant differences in the average importance of any attribute, using Bonferonni correction (this means that the effects are reported at 0.0167 level). As for the comparison between participants with intermediate vs. higher education levels, only the attribute 'open and green spaces quality' is significantly more important for participants with higher education levels.

In Lisbon, the factor of education is also relevant to the differentiation of the average importance of the attributes 'open and green space' quality', U= 875, z= -3,22, *p*=0,00, r= -0,31, and 'community', U= 747, z= -4,04, *p*=0,00, r= -0,39, but only between participants with basic and higher education levels. The attribute 'population density' is also significantly more important to participants with higher education when compared with those with basic education, U= 963, z= -2,65, *p*=0,01, r= -0,26 (Appendix C-II-3).

Finally, participants belonging to different **dwelling groups**, also present significant differences between the attributes 'open and green spaces typology', 'open and green spaces quality', and 'community'. To follow up these findings, again a series of Mann-Whitney tests were performed, using Bonferroni correction. These tests do not present significant differences, in the whole sample, between the average importance of any attribute when comparing depopulating neighbourhoods and growing neighbourhoods. However, when comparing residents of depopulating neighbourhoods and house searchers, there are significant differences in the attributes 'open and green spaces quality', and 'community'. Likewise, there are significant differences between the residents of growing neighbourhoods and house searchers regarding the same attributes: 'open and green spaces' quality', and 'community' (Figure 48 and 49). The importance of 'open/green spaces' quality' for house searchers is higher, and of 'community' is lower.

The analysis of differences between different dwelling groups in Genoa is very similar to the sample as a whole, with residents of depopulating, and growing neighbourhoods giving a significantly higher average importance to the attribute 'community', (depop. Vs Hs: U= 608, r= -0,37, *p*= 0,00/ grow. vs. Hs: U= 471, r= -0,48 , *p*= 0,00), and a lower average importance to the attribute 'open and green spaces quality' (depop. Vs Hs: U= 753, r= -0,26, *p*= 0,01/ grow. Vs. Hs: U= 562, r= -0,41, *p*= 0,00), when compared with house searchers. However, in Lisbon's sample (Figure 51), the data present a different picture, where the attribute 'community' is significantly more important for participants living in depopulating neighbourhoods when compared with participants living in growing neighbourhoods, U= 705, r= -0,30, *p*= 0,00.



Note: UT – Urban Typology; COMM – Community; OGSQ – Open/Green Spaces' Quality; OGST - Open/Green Spaces' Typology; PD – Population Density; SEC – Security.

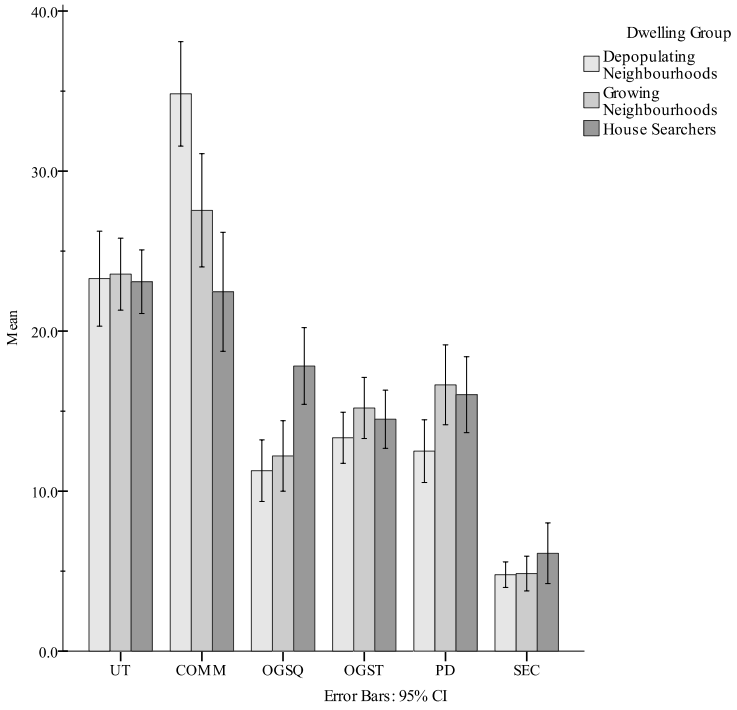
Figure 48. The average importance across attributes in the whole sample, by dwelling group.

(whole sample) Dwelling Group		**UT**	**PD**	**OGST**	**OGSQ**	**COMM**	**SEC**
Mean Rank	depop (N=106)	137,96	132,02	126,50	131,01	163,77	136,90
	grow (N=101)	141,48	147,42	146,45	119,44	152,58	135,39
	house searchers (N=75)	146,53	146,93	156,03	186,03	95,09	156,23
Chi-Square (H)	(df=2)	0,49	2,30	6,34	31,51	34,06	3,35
Sig.		0,78	0,32	0,04	0,00	0,00	0,19
Jonckheere (J)		13637,50	14135,00	14946,50	15997,50	9127,00	14166,50
z (St J-T test)		0,70	1,37	2,47	3,88	-5,37	1,42
r Jonckheere		0,04	0,08	0,15	0,23	-0,32	0,08
Sig. 2 tailed		0,48	0,17	**0,01**	**0,00**	**0,00**	0,16
		UT	**PD**	**OGST**	**OGSQ**	**COMM**	**SEC**
Mann Whitney U (depop vs. HS)		3744,00	3582,00	3127,00	2405,50	2122,00	3433,50
Z Mann W (depop vs. HS)		-0,67	-1,13	-2,44	-4,52	-5,34	-1,56
r (depop vs. HS)		-0,05	-0,08	-0,18	-0,34	-0,40	-0,12
Sig. 2 tailed		0,51	0,26	0,02	**0,00**	**0,00**	0,12
Mann Whitney U		5208,50	4741,00	4611,50	4895,00	4845,00	5299,00
Z Mann W (depop. vs. growing)		-0,34	-1,42	-1,72	-1,06	-1,18	-0,13
r (depop. vs. growing)		-0,02	-0,10	-0,12	-0,07	-0,08	-0,01
Sig. 2 tailed		0,74	0,16	0,09	0,29	0,24	0,90
Mann Whitney U		3641	3773	3546	2017	2160	3224
Z Mann W (growing vs. HS)		-0,44	-0,04	-0,72	-5,30	-4,87	-1,69
r (growing vs. HS)		-0,03	0,00	-0,05	-0,40	-0,37	-0,13
Sig. 2 tailed		0,66	0,97	0,47	**0,00**	**0,00**	0,09

Figure 49. The average importance across attributes in the whole sample, by dwelling group: Kruskal Wallis and Mann Whitney tests.

There is also another significant difference regarding the attribute 'population density'; it is less important for residents of depopulating neighbourhoods when compared with growing neighbourhoods, U= 702, r= -0,30, *p*= 0,00, and with house searchers, U= 621, r= -0,27 , *p*= 0,01. As for the quality of green/open spaces, it is significantly more important to house searchers when compared with both other subgroups of the same variable, i.e., depopulating, U= 415, r= -0,46, *p*= 0,00, and growing neighbourhoods, U= 476, r= -0,36 , *p*= 0,00 (Appendix C-II-3).

When assessing the results of these tests relative to the research questions, it is worth noting that the results for the attribute 'urban typology' are considerably resilient across age, gender, education level and dwelling groups, thus, not supporting the hypothesis that depopulation can trigger the attractiveness of denser urban fabrics. However, with regard to people's proximity - 'population density' - and more supportive communities, the data in Lisbon seem to corroborate the hypothesis that residents in depopulating neighbourhoods are less concerned about people's proximity to them, in general, but more concerned about maintaining and reinforcing social ties with closer neighbours. This also reinforces the data from the focus group discussions (Figure 50).



Note: UT – Urban Typology; COMM – Community; OGSQ – Open/Green Spaces' Quality; OGST - Open/Green Spaces' Typology; PD – Population Density; SEC – Security.

Figure 50. Attribute importance, by dwelling group, for the Lisbon sub-sample.

SUMMARY:

The attributes of 'urban typology' and 'security' have no significant variations between different socio-economic groups, namely, between the three sub-samples of the variable 'dwelling groups'. This fact does not corroborate the first sub-hypothesis, which envisaged that urban depopulation is a trigger for the attractiveness of higher urban densities.

'Open and green space quality', 'open and green space typologies', and 'community' are the three attributes that are more highly sensitive to socio-economic differences, with older and less educated participants valuing the attribute 'community' significantly more, and the attributes related to open and green spaces significantly less ('open and green space quality' and 'open and green space typologies'). The attribute 'population density', also presents differences across different socio-economic groups, especially in Lisbon, where younger, more educated participants, and residents of growing neighbourhoods and house searchers, value the attribute 'population density' more[62].

In Genoa, there are no significant differences between the average importance of any attribute when comparing residents of depopulating neighbourhoods and residents of growing neighbourhoods. Interestingly, in Lisbon, the situation is different. There, residents of depopulating neighbourhoods gave a higher average importance to the attribute **'community'**, and a lower average importance to the attribute '**population density'**. These results support the idea that population shrinkage, although not necessarily linked with proximity to other people being what makes an area attractive, is linked to the idea that communities' support is important. However, the fact that these conclusions were not confirmed in Genoa indicates that more comparative studies would be necessary to explore these links more deeply. One fact that is clear in both cities is that house searchers value significantly more the attribute **'open/green space quality'** when compared with both residents of depopulating and growing neighbourhoods.

8.3.2.2 Community Support

When following up on the clue that the importance of the attribute 'community' is more relevant to residents of depopulating neighbourhoods in Lisbon, the relative importance of the factor 'community' was further tested in a multiple regression, by comparing residents of depopulating against growing neighbourhoods. The test was undertaken for the data sourced in Lisbon only, where the attribute 'community' follows a normal distribution (Figure 54) and also because in Genoa, no such difference was found.

The results show that even after controlling for the variables age, education and the presence of children in the household, the attribute 'community' is still significantly different between the

[62] Interestingly, the attributes 'open/green spaces' quality', 'open/green spaces' typologies' and 'community' are part of the same component in the factorial analysis.

residents of depopulating and growing neighbourhoods, β= - 0,32, *p*= 0,00. (Figure 51 and 52, Appendix C-II-4).

Step1	**B**	**SE**	**β**
Constant	26,72	5,66	
Age Group	3,83	1,77	0,26*
Education	-1,76	1,62	-0,12
Children	0,22	3,24	0,01
Step2	**B**	**SE**	**β**
Constant	40,56	6,84	
Age Group	3,12	1,70	0,21*
Education	-2,43	1,55	-0,17
Children	-0,85	3,10	0,03
Depopulation	-7,52	2,30	-0,32**

Note: R^2 = 0,19 for step 1, ΔR2= 0,05 for step 2, (*ps* < 0.05). * *p*< 0.05, ***p*< 0.01, ****p*< 0.001.

Figure 51. Multiple regression testing the variable 'community' between depopulating and growing urban environments in Lisbon, controlling for age, education and the presence of children in the household

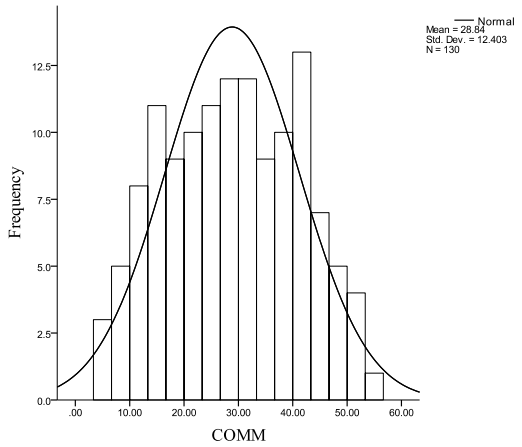


Figure 52. Histogram showing the normal distribution of the variable corresponding to the importance of the attribute 'community' for Lisbon's sub-sample.

Interestingly, although the attribute age is significantly different between the two groups in the first model, β= 0,26, *p*= 0,03, the variables education and the presence of children do not show any significance in either model. These results indicate that population change is a stronger predictor for the importance of the attribute 'community' than age, cohabitation with children, or level of education, in Lisbon's sub-sample[63].

Moreover, the level 'my neighbours are my friends' in Lisbon's sub-sample is also significantly different in depopulating neighbourhoods when compared to growing

[63] The tolerance values for collinearity are all above the critical value of 0.10, and the VIF values are all below the critical value of 10. This means that there are no significant collinearity problems and no further investigation is needed (Field, 2000).

neighbourhoods, again, when controlling for the variables age, education and the presence of children in the household (Figures 53 and 54, Appendix C-II-4).

Step1	**B**	**SE**	**β**
Constant	57,26	17,54	
Age Group	7,11	5,50	0,16
Education	-3,09	5,02	-0,07
Children	9,15	10,04	0,10

Step2	**B**	**SE**	**B**
Constant	94,70	21,52	
Age Group	5,19	5,34	0,12
Education	-4,90	4,88	-0,12
Children	6,27	9,73	0,07
Depopulation	-20,35	7,24	-0,21**

Note: R^2 = 0,04 for step 1, ΔR2= 0,08 for step 2, (*ps* < 0.05). * *p*< 0.05, **p< 0.01, ***p< 0.001

Figure 53. Multiple regression testing the variable 'neighbours are my friends' between depopulating and growing urban environments in Lisbon, controlling for age, education and the presence of children in the household.

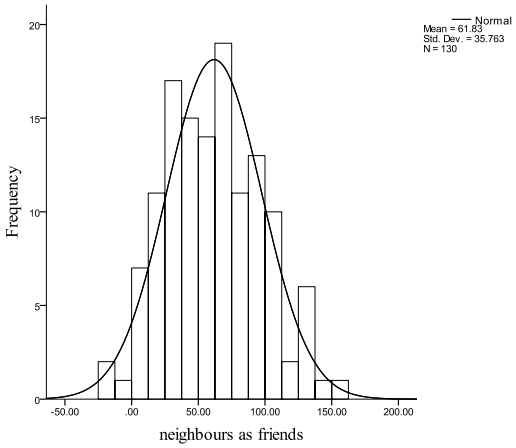


Figure 54. Histogram showing the normal distribution of the variable correspondent to the importance of the attribute 'neighbours as friends' for Lisbon's subsample.

These results, show that the strength and supportiveness of a community can be an important issue to investigate under depopulating contexts.

Moreover, when testing for relations between different attributes, the attribute 'community' also seems to have a predominant role, presenting stronger correlations with the other five attributes, especially with the attributes 'urban typology', rs= -0.49, *p*=0.00 and 'open and green

spaces quality', rs= -0.45, p=0.00 (whole sample), both close to strong correlation coefficients[64] (Field, 2000)[65].

The correlation between 'community' and 'urban typology' is slightly stronger in the sub-sample living in depopulating neighbourhoods, rs= -0,60 when compared with the other two subgroups, i.e., 'growing neighbourhoods', rs= -0,42, and 'house searchers', rs= -0,53. Whereas, around **37%** of the variability of the attribute 'urban typology' in the depopulating neighbourhoods' subgroup is due to variability of the attribute 'community', this percentage, decreases to **22%** in growing neighbourhoods and to **23%** in the subgroup of house searchers (Figure 56). However, when comparing the correlation coefficients among the three groups, no significant differences were found between them in the whole sample (Figure 55).

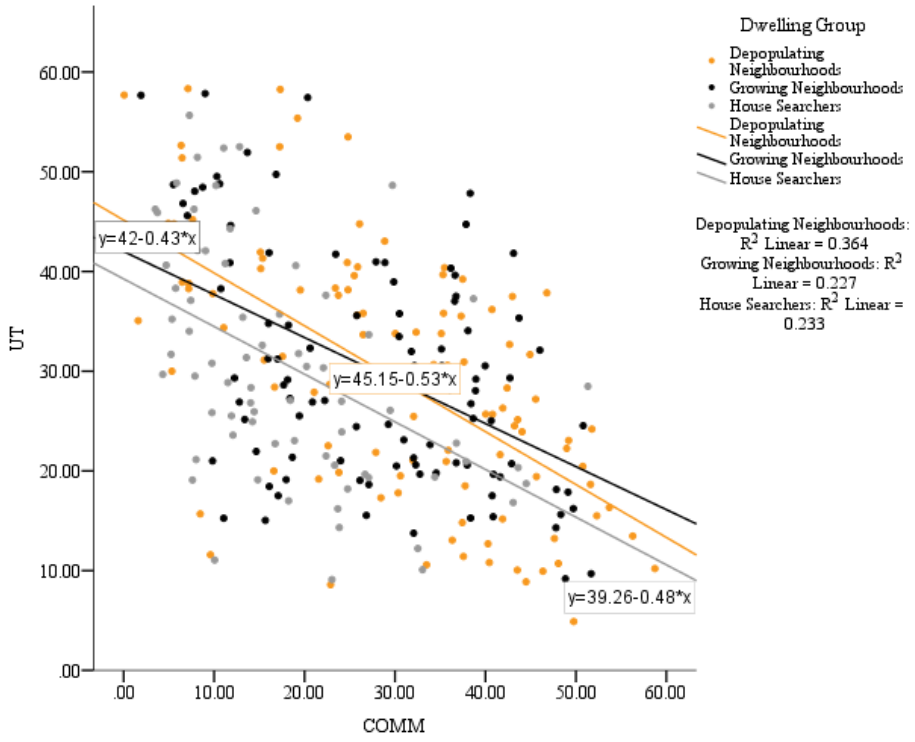


Figure 55. Correlations between the attribute 'community' and 'urban typology' (whole sample), according to the dwelling conditions: depopulating, neighbourhoods' growing neighbourhoods, and house searchers (UT – Urban Typology; COMM – Community).

In Lisbon, the sub-group living in depopulating neighbourhoods presents a significantly stronger negative correlation between 'urban typology' and 'community' (rs=-0,57**) than the other two sub-groups (rs grow.= -0,29 and rs HS = -43**), with the sub-group of participants

[64] The attributes were chosen so that the correlations would not be known as significant as correlated.

[65] Indeed, the most expressive correlations in the data are between 'community' and 'urban typology' in Genoa's sub-sample, with a spearman's correlation coefficient of 0,56 (rs) and p=0.00, and 'community' and 'population density' in Lisbon's sub-sample, rs= 0,50, p=0,00.

living in the growing neighbourhood not presenting a significant correlation between these two attributes (Figure 56). This means that in Lisbon, people living in depopulating environments tend to trade-off more easily 'urban typology' for 'community' than the other two groups (Appendices C-II-5).

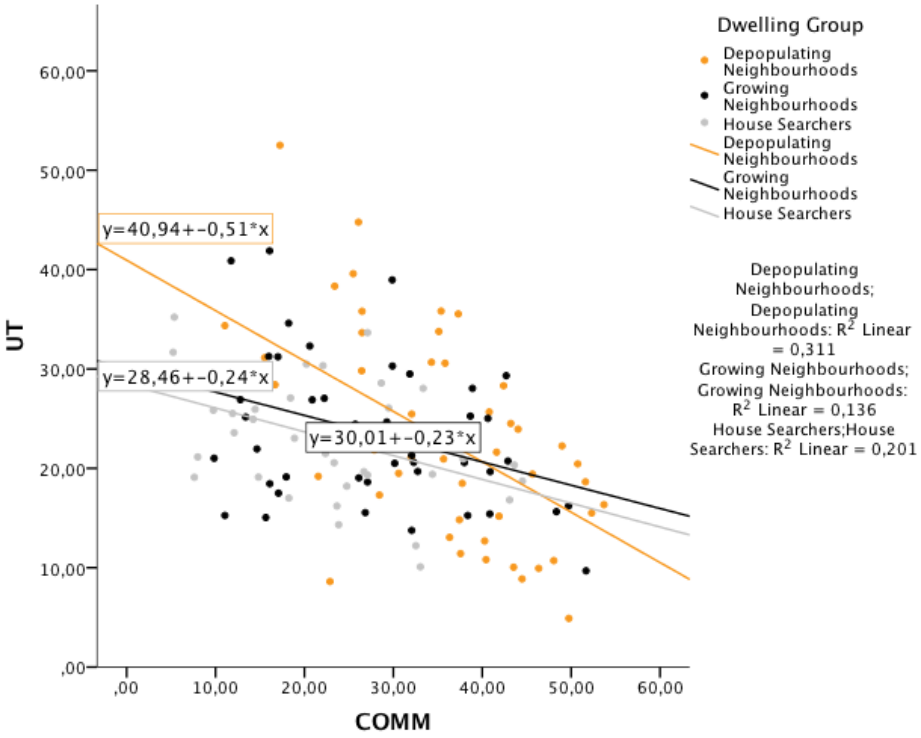


Figure 56. Correlations between the attribute 'community' and 'urban typology' (Lisbon sample), according to the dwelling conditions: depopulating, neighbourhoods' growing neighbourhoods, and house searchers (UT – Urban Typology; COMM – Community).

SUMMARY:

In Lisbon, living in depopulating urban environments, when compared to growing urban environments, seems to enhance the importance given to having strong community bonds. This fact was confirmed even after controlling for the factors age, education and the presence of children in the household.

The attribute 'community' also presents stronger correlations with the other five attributes, with these correlations being negative in all cases. The stronger correlations are between the attributes 'community' vs. 'urban typology', and, 'community' vs. 'open and green spaces quality'. This indicates the high importance values given to the attribute 'community' are correlated with lower importance values of the attributes 'urban typology' and 'open and green spaces' quality'.

Interestingly, in Lisbon the correlation between 'community' and 'urban typology' is significantly stronger in the sub-sample living in depopulating neighbourhoods, meaning that, in these contexts, participants are more willing to trade-off their preferred level of 'urban typology' by their preferred level of 'community'.

8.3.2.3 Population Reconcentration

When comparing the importance of different attributes, we identified the attribute 'community' as the best predictor of 'depopulation' in Lisbon's sub-sample. But also the variable 'population density' presented significant different importances between depopulating and growing neighbourhoods. However, this variable is not normally distributed, therefore, a linear regression might not produce reliable results. Therefore, to further explore this variable, some classification trees were developed, using CHAID method (chi-squared automatic interaction detection), comparing all the levels present in the study by dwelling groups. A decision tree develops a series of regressions made graphically visible in the form of a tree, from the more to the least suitable predictor.

The results show that residents of depopulating neighbourhoods value significantly less the level 'neighbours as strangers' (X^2=8,64; p=0,03, df=1), and significantly more the level 'neighbours as friends' (X^2=11,8; p=0,01; df=1), when compared with residents of growing neighbourhoods in Lisbon. These are the first levels to be presented and they continue to corroborate the previous findings, since, between all levels, the two first branches of the tree belong to the attribute 'community'.

However, the tree shows a third branch of significant differentiation between the group of participants living in depopulating *versus* growing neighbourhoods. This branch concerns the level 'high population density' (X^2=15,8; p=0,01, df=2). Higher utility values of the attribute 'high population density' are more predominant between residents of depopulating neighbourhoods, being the overall predicting percentage of the model 71% (Appendix C-II.6). This means that participants living in depopulating environments value significantly less negatively the level 'high population density' and it is this difference that explains a lower importance given to this attribute in depopulating neighbourhoods.

8.3.2.4 Open and Green Spaces

A deeper analysis of the correlations between different levels of attributes has proved to be useful also to clarify the role that open/green spaces might have in depopulating contexts. The first observation that was noted was the existence of strong correlations between levels like 'tall buildings and narrow streets' and 'squares/small gardens', rs=0,52, p=0,00, or between 'detached

houses' and 'private plots', rs=0,61, *p*=0,00. These correlations are generally consistent across different cities and dwelling contexts, and, not surprisingly, they correspond to the main existing urban typologies in real urban contexts, and therefore, they confirm that respondents seem to be looking for a coherent/known paradigm, and are more or less consistent with them. Interestingly, this same conherence is not found in the correlations between 'urban typology' and 'population density'.

More relevant, though, is the presence of significant positive correlations between levels like 'squares/small gardens' and 'my neighbours are my friends', rs=0,27 (medium-size effect), *p*=0,00 or the 'high quality' of open and green spaces and the levels 'I do not know my neighbours', r=0,38 (medium-size effect), *p*=0,00. These correlations indicate that both the quality and typology of open and green spaces are related to people's preferences in relation to their proximity to community support, with small and enclosed open spaces more attractive to participants that highly value community support; and that the greater concern for a good quality of open/green spaces is related, positively, to people's preferences for a more anonymous dwelling environment.

This seems to indicate that different community sensibilities/preferences are relevant to preferences regarding open and green spaces' typologies. Although this fact does not support, directly, this research's fifth hypothesis, namely, that there would be a greater preference for enclosed and protected open/green spaces' typologies in depopulating contexts, however, it indicates that enclosed open/green spaces' typologies are associated with the higher preference for stronger communities. Since the Lisbon data seem to indicate that depopulation is a predictor for the greater preferences for closer communities, depopulation might be an indirect trigger for the higher attractiveness of enclosed and protected open/green spaces.

By further exploring these relations by dwelling groups, in both cities, depopulation seems to be a growing factor for the above correlations. The data show that the subgroup where the correlation 'squares/small gardens' vs. 'neighbours as friends' is stronger, is the group of residents of depopulating neighbourhoods. Whereas, in depopulating neighbourhoods, **21%** of the variability of the level 'squares and small gardens' is due to the variability of the level 'my neighbours are my friends' (whole sample), this variability index decreases to **5%**, and to only **3%,** in the sub-sample of participants living in growing neighbourhoods and in house searchers, respectively (Figure 57). In Genoa, the sub-sample concerned with depopulating neighbourhoods presents a significant correlation between the referred levels, r=0,47, p=0,00, whereas for growing neighbourhoods, the correlation coefficient decreases to rs=0,32, *p*=0,02, and in the group of house searchers, the correlation is not significant. In Lisbon, the situation is even clearer, with only the group of residents of depopulating neighbourhoods presenting a significant correlation between the levels 'squares and small gardens' and 'neighbours as friends'. We can conclude, then, that the results from both sub-samples corroborate the fact that the correlation

between people's greater preference for stronger communities and greater preference for enclosed and protected typologies of open/green spaces is enhanced in depopulating urban environments.

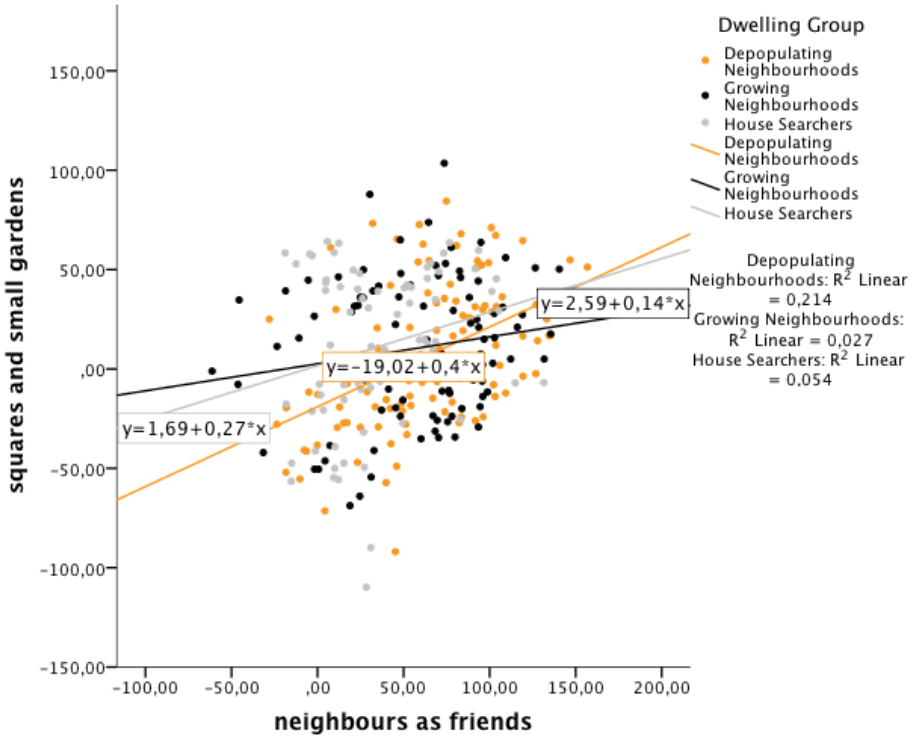


Figure 57. Correlations between the levels 'squares and small gardens' and 'neighbours as friends' (whole sample), according to the dwelling conditions: depopulating, neighbourhoods' growing neighbourhoods, and house searchers.

Coherently, the correlation between the levels 'squares/small gardens' and 'neighbours as strangers' is more negatively expressed in depopulating urban environments. In fact, again in Lisbon, this correlation is only significant in this subgroup, r= 0,33, p=0,02 (Appendix C-II-5).

8.3.2.5 Self-Explicated Preferences and Willingness to Change

Beside importance, utilities, and share of preferences, there are other relevant outputs of the questionnaire, namely, the responses to the 'build your own' (BYO) section, to the 'pre-'build your own' section, to the 'must-haves' questions, and to the 'unacceptable' questions.

The BYO section asks respondents to build their own ideal scenario – a self-explicated inquiry – and it was the starting point of the ACBC study, from which information was extracted to select the concepts that would be presented to each participant (near-neighbours). However, a parallel question was added to the questionnaire just before the BYO, – the 'pre-BYO' – where participants indicated the levels of each attribute that mark their own neighbourhood's

characteristics in real life. The comparison between these two questions informed us of the levels of willingness to change among different participants.

The 'must-haves' and 'unacceptable' questions were also designed to help predict and select the 'near-neighbours' concepts that were selected to be presented, however, they are, in themselves, useful outputs for a more complete picture of the context of analysis.

The table below shows, in percentages, the number of times each level of an attribute was chosen compared to the number of times it was available to choose, in these sections of the questionnaire (Figure 58).

Levels of Attributes	Pre-BYO	BYO	Must-Haves	Unacceptable
Urban Typology				
Tall Buildings in Narrow Streets	15.02	2.17	0.26	**34.07**
Medium-Size Buildings in Narrow Streets	**56.81**	14.15	0.00	17.50
Medium-Size Buildings in Wide Streets	20.66	**47.84**	**2.98**	4.71
Detached Houses in Wide Streets	16.90	13.76	0.37	5.16
Population Density				
Low	16.90	13.76	0.37	5.16
Medium	**54.93**	**70.59**	0.37	0.37
High	28.17	15.65	0.00	**8.42**
OGS Quality				
Low	**46.01**	-	1.12	**4.89**
Medium	42.72	-	**4.36**	3.84
High	11.27	-	0.00	2.18
OGS Typology				
Squares and small gardens	**81.22**	**41.61**	0.00	**9.74**
Private lots	8.45	18.60	**9.37**	4.32
Big Public Park	10.33	**39.79**	0.00	0.48
Community				
My neighbours are my friends	35.68	**61.25**	**2.03**	0.64
We greet each other	**54.46**	36.23	0.00	2.30
I do not know my neighbours	9.86	2.51	0.26	**37.43**
Security				
Always safe	33.80	-	0.26	0.00
Usually safe	**46.95**	-	0.00	0.26
Unsafe from time to time	19.25	-	-	-

Figure 58. Respondents, choices, as percentages, for the questions 'pre-BYO', 'BYO', 'must-haves' and 'unacceptable', for the whole sample.

The data gathered from these questions indicates that the most preferred scenario would be a neighbourhood with 'medium-sized buildings with wide streets', with 'medium population density', with either 'squares and small gardens' or a 'big public park', and where 'neighbours are friends'. This is, of course, within this set of attributes, and within a task where there is no need to

trade-off. It is interesting to compare this generally ideal scenario with the reality the majority of participants actually experience. This reality is described by participants as neighbourhoods with 'medium-sized buildings with narrow streets', with 'medium population density', with open and green spaces of 'low' or 'medium' quality, more frequently 'squares and small gardens', where neighbours 'greet each other' and where participants feel 'usually safe'.

For those participants who were asked to indicate what would be for them unacceptable features in an imaginary neighbourhood, it seems that a 'high' population density was more often described as unacceptable than a 'low' population density. Likewise, 'squares and small gardens' is reported more often as unacceptable than the other two levels of the attribute OGST. However, by far, the most unacceptable features seem to be living in a neighbourhood with 'tall buildings' and 'narrow streets', and not knowing the neighbours. As for the 'must haves', the strongest percentages are for neighbourhoods with 'medium-size buildings' and 'wide streets', open/green spaces of 'medium quality' and, interestingly, the possibility of having an open 'private lot'. The fact that some of the results for the 'must-haves' and 'unacceptable' may seem in some ways contradictory to the BYO or to the results of the choice exercise, is probably because not all the respondents were asked this question, whereas all participants were asked the BYO and choice task.

The results from the BYO question were analysed by 'dwelling groups' (Figure 59) and the results are considerably stable. The levels 'big public park' and 'neighbours as friends' were selected more often by participants in the group living in depopulating neighbourhoods, compared with the other groups. However, when the results focusing on different cities were analysed, there is a difference regarding the attribute 'open/green spaces' typology'.

Levels of Attributes	BYO (%)	BYO Depop.	BYO Grow.	BYO HS
Urban Typology				
Tall Buildings and Narrow Streets	2,48	1,89	2,97	2,67
Medium Size Buildings and Narrow Streets	12,77	15,09	14,85	6,67
Medium Size Buildings and Wide Streets	**48,58**	**49,06**	**44,55**	**53,33**
Detached Houses and Wide Streets	36,17	33,96	37,62	37,33
Population Density				
Low Density	13,83	16,98	12,87	10,67
Medium Density	**72,7**	**70,75**	**67,33**	**82,67**
High Density	13,48	12,26	19,8	6,67
OGS Typology				
Squares, Crescents and Small Gardens	**41,84**	36,79	**42,57**	**48**
Private and Semi-private lots	19,15	20,75	19,8	16
Big Public Park	39,01	**42,45**	37,62	36
Community				
My Neighbours are my Friends	**59,93**	**66,98**	**58,42**	**52**
We Greet Each Other	36,52	30,19	38,61	42,67
I do not Know my Neighbours	3,55	2,83	2,97	5,33

Figure 59. Respondents' choices, as percentages, for the BYO question, by dwelling group.

Whereas in Lisbon, the choice selected the most is 'squares and small gardens', in Genoa, it is 'big public park' across all the dwelling groups. In other attributes, the choices in the BYO are fairly consistent.

Also, the pre-BYO question was analysed according to different dwelling groups in order to better understand how different groups perceive their current neighbourhoods (Figure 60).

Levels of Attributes	Pre-BYO (%)	Pre-BYO Depop.	Pre-BYO Grow.	Pre-Byo HS
Urban Typology				
Tall Buildings and Narrow Streets	15,02	15,28	17,14	12,86
Medium Size Buildings and Narrow Streets	**56,81**	**62,5**	**68,57**	**38,57**
Medium Size Buildings and Wide Streets	20,66	20,83	10	**31,43**
Detached Houses and Wide Streets	7,51	1,39	4,29	17,14
Population Density				
Low density	16,9	12,5	17,14	21,43
Medium density	**54,93**	**54,17**	**54,29**	**55,71**
High density	28,17	33,33	28,57	22,86
OGS Quality				
Low Quality	**46,01**	**52,78**	**48,57**	**35,71**
Medium Quality	**42,72**	**43,06**	**44,29**	**41,43**
High Quality	11,27	4,17	7,14	22,86
OGS Typology				
Squares, Crescents and Small Gardens	**81,22**	**94,44**	**84,29**	**64,29**
Private and Semi-private lots	8,45	1,39	10	14,29
Big Public Park	10,33	4,17	5,71	21,43
Community				
My Neighbours are my friends	35,68	**43,06**	41,43	22,86
My Neighbours greet me	**54,46**	**48,61**	**51,43**	**62,86**
I do not know my neighbours	9,86	8,33	7,14	14,29
Security				
Always Safe	33,8	30,56	**41,43**	30
Usually Safe	**46,95**	**45,83**	38,57	**55,71**
Unsafe from time to time	19,25	23,61	20	14,29

Figure 60. Respondents' choices, as percentages, for the pre-BYO question, by dwelling group.

With regard to 'urban typology', respondents' most frequent choice is 'medium size buildings in narrow streets' in both cities; however, in Lisbon, on average, the choice for this level is a considerably higher percentage. In the attribute 'population density', approximately half of the participants reported living in a neighbourhood with 'medium population density'; again, in Lisbon, this percentage is slightly higher. The majority of the respondents reported having access to open/green spaces of low and medium quality, while house searchers, more often reported living with access to open/green spaces of 'high quality'. This was to be expected since these

respondents belong to a higher socio-economic group. For the typology 'open/green spaces', the great majority of respondents declared that the dominant typology is the level 'squares and small gardens'; although in Genoa, the figure is slightly smaller, especially for the participants not looking for a new house. Whereas in Lisbon, 98% of participants living in depopulating neighbourhoods, and 95% of participants living in growing neighbourhoods, reported a dominant presence of the typology 'squares and small gardens', these percentages decrease to, respectively, 87% and 65% in Genoa.

Comparing the results above with the BYO question, it is possible to conclude that whereas in the depopulating neighbourhoods of Lisbon, 40,86% of the respondents that reported having 'squares and small gardens' in their neighbourhood would prefer to have access to another typology of open/green spaces, in Genoa, this number increases to 67,70%. In the group of house searchers, only 0,04 of those who reported living in a neighbourhood with 'squares and small gardens' would change to any other typology of open/green spaces. As for those living in growing neighbourhoods, on average, around 36% would change from 'squares and small gardens' to other typologies of open and green spaces (Appendice C-II-7).

Regarding the attribute 'community', around half of the participants reported having neighbours that greet them, and approximately 34% reported having 'neighbours as friends'. The two levels represent, together, 84% of the choices, meaning that most of the communities of reference, for the whole sample, are considerably strong. Nevertheless, there are still around 7,4% of respondents that would prefer to change from having neighbours that just greet them to neighbours that are their friends.

The attribute 'security' was described by around half the participants as 'usually safe', however, this percentage in Lisbon is slightly lower, especially for participants living in depopulating and growing neighbourhoods, where about 40% reported feeling always safe in the neighbourhood.

A crude comparison of the willingness to change (pre-BYO *minus* BYO) by city (Appendix C-II-8), shows that in Genoa, there is a higher percentage of respondents characterising their ideal neighbourhood differently from their current neighbourhood. This is particularly true for the attribute 'population density' in Genoa, where most participants report living in neighbourhoods with 'medium' or 'high' population densities, but when asked what would be the ideal situation, there is a strengthening of the level 'medium density' and even a slight shift to the level 'low density'. Interestingly, this trend in the willingness to change is smaller in growing neighbourhoods in Genoa. Regarding the attribute 'open/green spaces' typology', the willingness to change in Genoa is also higher. Respondents tend to describe their neighbourhoods as predominantly characterised by 'squares and small gardens', but would prefer to have access to 'big public parks'. This preference is also reported more strongly in depopulating neighbourhoods in Genoa. However, in Lisbon, although there is a considerable shift towards 'big public parks',

the greatest preference, when respondents are asked to describe an ideal scenario, is still 'squares and small gardens'. The attribute 'community' is the only one that presents a stronger willingness to change in Lisbon when compared to Genoa. Respondents in Lisbon would prefer to have neighbours that are also friends, to a larger extent.

The fact that in Genoa the willingness to change is considerably higher, especially when considering depopulating neighbourhoods, might be again rooted in the context of the neighbourhoods chosen for the case studies. In Genoa, the neighbourhoods losing population are in the city centre, but not in its historical core, whereas in Lisbon, the neighbourhoods that were studied are part of the oldest neighbourhoods in the city. This might be the root of a more detached sentiment towards the reality in which residents live in Genoa.

Finally, it was particularly interesting to compare the results from the conjoint analysis and from the BYO section, a section equivalent to self-explicated methods (SEM) (Figure 61). Comparing these two options of inquiry provides a better understanding of the advantages of using conjoint analysis when compared to self-explicated methods.

	BYO (%)	**Sh Pref.**
Urban Typology		
Tall Buildings and Narrow Streets	0,96	3,99
Medium Size Buildings and Narrow Streets	23,74	15,15
Medium Size Buildings and Wide Streets	**45,87**	**41,36**
Detached Houses and Wide Streets	29,43	39,5
Population Density		
Low Density	7,38	23,75
Medium Density	**73,22**	**55,83**
High Density	19,4	20,42
Open/Green Spaces' Typology		
Squares and Small Gardens	**58,87**	36,21
Private and Semi-private lots	8,42	23,48
Big Public Park	32,71	**40,31**
Community		
My Neighbours are my Friends	**63,27**	**58,68**
We Greet Each Other	35,61	35,83
I do not Know my Neighbours	0,56	5,49

Figure 61. Comparison between the BYO responses and the resultant share of preferences from the choice based study.

If, for example, the BYO results show a very close percentage differential between the levels 'medium size buildings and narrow streets' and 'detached houses and wide streets', the results from the conjoint exercise can help to discriminate these two levels. This means that when faced with a compulsory choice, participants value more the level 'detached houses and wide streets', if compared with 'medium size buildings and narrow streets'. This might be because in a self-explicated method, respondents might follow a self-convincing process of choosing a scenario

closer to their reality, whereas, the conjoint exercise of compulsory choice might be showing hidden, but real, preferences.

Likewise in the attribute 'open/green spaces' typology', there might be a self-convincing phenomenon linked to the level 'squares and small gardens', since the choice task reveals a shift in preference from this level to the level, 'big public park'. However, when considering the attributes 'open/green space typology' and 'population density', the same discriminating power is not detected (Appendix C-II-8).

SUMMARY:

The data collected in the self-assessment question – Pre-BYO – indicates that the most preferred scenario, for the sample as a whole, would be a neighbourhood with 'medium-sized buildings and wide streets', with 'medium population density', with either 'squares and small gardens' or a 'big public park', and where 'neighbours are friends'. The levels indicated as most unacceptable were 'tall buildings' and 'narrow streets', and not knowing the neighbours.

Regarding the comparison between the reported attributes of participants' current neighbourhoods and the self-explicated ideal neighbourhood it is noticeable that in Genoa participants report a higher willingness to change overall. In both cities the attribute with higher 'willingness to change' was 'urban typology'. However, in Lisbon people are more willing to change for a closer community, whereas in Genoa, participants are more willing to change for a lower 'population density'.

Finally, the choice exercise presented a higher capacity of discrimination between preferences towards different levels of some attributes.

8.3.2.6 Other Relevant Attributes of Neighbourhoods

At the end of the questionnaire, another two questions were added. One asked participants to rank five other relevant attributes that characterise neighbourhoods, where 1 was the most important factor, and 5 the least important factor. The graphic below presents the *mode* of the different attributes by dwelling groups, i.e., what was the most frequent position of each one of these attributes for participants of different sub-samples (Figure 62).

The general trend classifies 'cleanliness of streets and open/green public spaces' as the most important attribute and 'views from my window' as the least preferred of the five attributes presented in all the sub-samples (whole sample, depopulating neighbourhood, growing neighbourhood and house searchers). The factors 'transport efficiency', 'diversity, quality and proximity to commerce', and 'walking distance to green spaces' were ranked differently by the different subgroups. For example, whereas transport efficiency was ranked either in first or second place for the participants living in depopulating and growing neighbourhoods, it is the

least important attribute for house searchers, a group, probably, with greater economic stability and with more chances of owning a car.

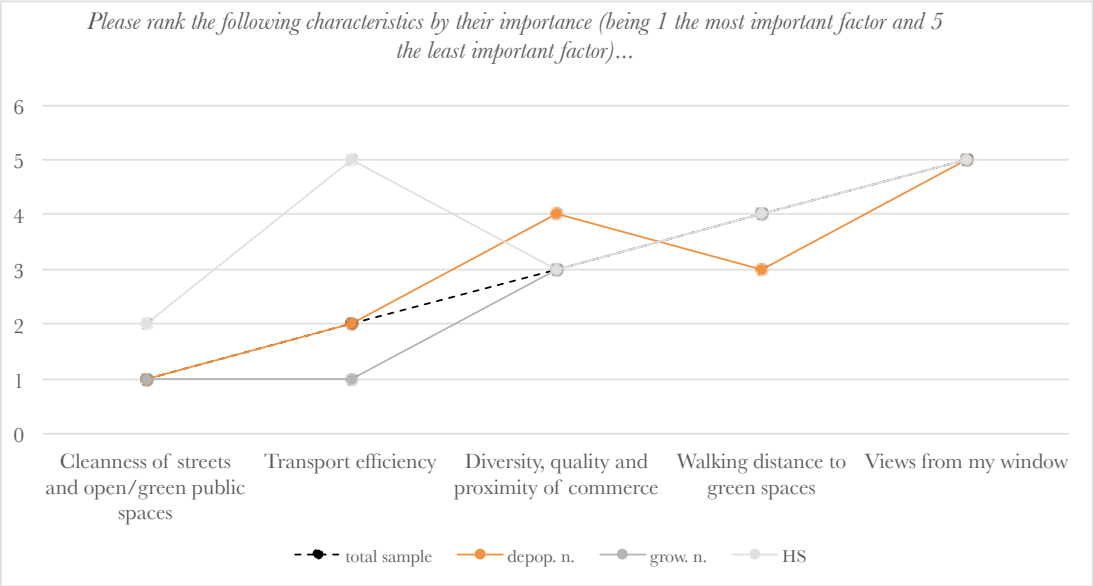


Figure 62. Testing other attributes: mode for each attribute in the whole sample and by sub-samples.

Also highly relevant is the fact that between 'diversity (…) of commerce' and 'walking distance to green spaces', there is an inversion between the results of all groups and the results regarding participants living in depopulating urban environments.

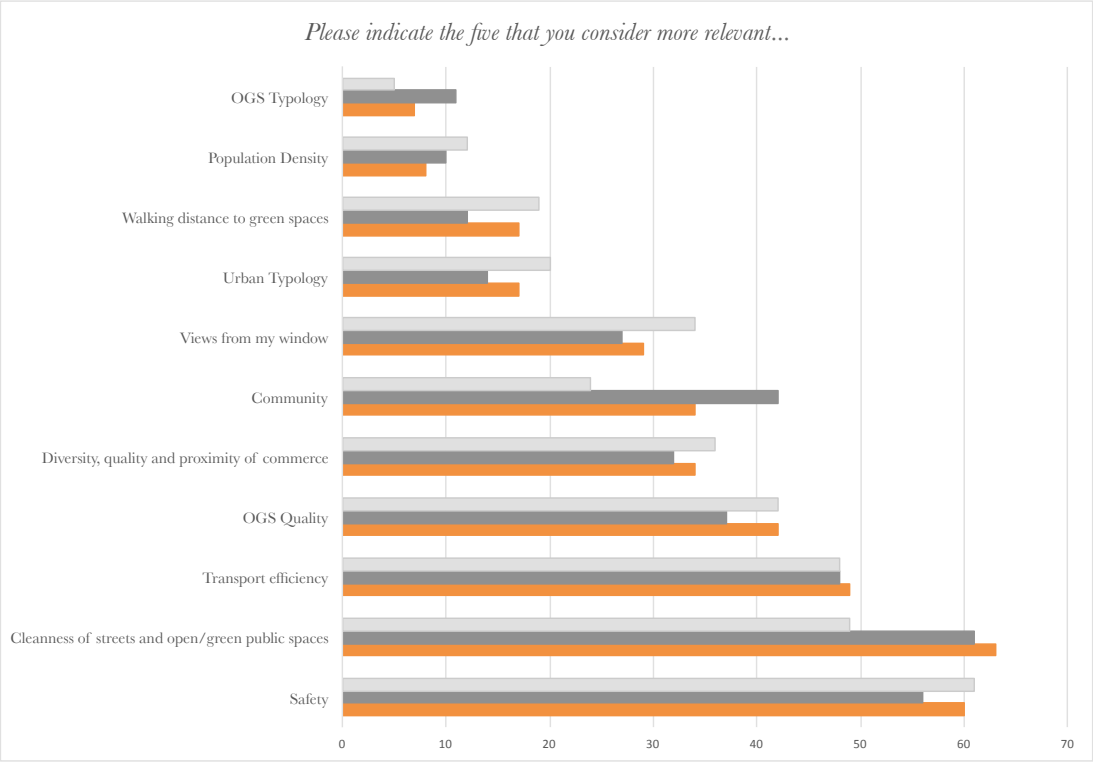


Figure 63. Testing all attributes: sum of selections in the whole sample and by sub-samples.

For this sub-sample, having closer access to green spaces is more often selected than having a vibrant commercial neighbourhood.

The last question presented the six attributes that were part of the choice task, plus the five extra attributes that were ranked in the previously described question. Here participants did not have to rank attributes, but only to indicate which five ones were, for them, the most relevant. The graphic above presents these eleven attributes, by ranking order, corresponding to the sum of the number of times each attribute was selected (Figure 63). The different colour bars represent the three dwelling groups: light grey for house searchers; dark grey for growing neighbourhoods, and orange for depopulating neighbourhoods.

The results presented in the graphic give a more complete picture of the relevance of all eleven attributes when compared, even if very straight-forwardly. One of the first outputs that we can draw from this question is that in the ACBC exercise, by choosing a generally positive scale for the attribute 'security', its overwhelming importance was avoided. In fact, 'security', when compared to the eleven attributes in this last question, is the most frequently selected attribute in the whole sample, and it is the more prevalent choice for the house searchers and residents living in depopulating neighbourhoods. The second ranked attribute concerns the 'cleanliness of the streets and open/green spaces'; the house searchers are the group that contributed least to this position in the ranking. The attribute 'transport efficiency', the third position in the ranking, was chosen approximately the same number of times across the different sub-samples, with only a slightly higher number of choices made by the group living in depopulating neighbourhoods. The fourth position goes to the attribute 'open/green spaces' quality', where residents living in growing neighbourhoods are less sensitive to the issue, and the fifth position concerns the vibrancy and proximity of commercial assets. The attribute 'community' comes in sixth position; residents of growing neighbourhoods chose it more often, and house searchers least often. The seventh position is 'the views from my window'; participants looking for a new house are more concerned with this issue than other groups. The attributes 'urban typology' and 'walking distance to green spaces' present a very similar position and distribution of results across all the groups. Finally, population density was chosen less frequently by residents of depopulating neighbourhoods, and 'open/green spaces' typology', was chosen more frequently by residents of growing neighbourhoods.

The attributes present in the ACBC study occupy the first (SEC), fourth (OGS Quality), sixth (COMM), eighth (UT), tenth (PD), and eleventh (OGS Typology) positions in the ranking, showing an even distribution through the scale, i.e., they do not mainly occupy the top, nor bottom of the ranking. It seems, then, that some of the attributes added at the end of the questionnaire are also important items to consider when assessing neighbourhoods, and also, that

the chosen attributes belong to the top of the priorities when assessing the qualities of a neighbourhood. Curiously, house searchers more often select the attribute 'community' than 'the views from my window', and residents of both types of neighbourhoods more often select the attribute 'cleanliness of the streets' than 'security'. Again, some attention should be paid to the fact that this type of question is very different from a choice-based one. So there are some differences between these last outputs and from the conjoint study that might stem from the type of exercise itself. Nevertheless, there is also the possibility that some respondents might have compensated for their lack of attention to some attributes in this last question.

SUMMARY:

The two last questions of the questionnaire added five other relevant attributes to the study, attributes also reported in the focus groups.

The results of these two questions show that, contrary to the other two sub-samples, participants living in depopulating neighbourhoods value more having good access to green spaces than to a vibrant commercial environment. Also, good access to transport is not so highly valued by house searchers as it is by the other two sub-samples.

The results from the last question show that the six attributes chosen to take part in the choice-based task are distributed evenly among the total scale of the eleven attributes presented to participants.

SECTION IV

9. Discussion

9.1. Expert Interviews

From the results of the interviews it is possible to conclude that, although to different degrees, both cities show a conservative political perspective regarding demolitions, especially in the city centre. In Genoa, although there is a sharper awareness of the abandonment problem, and some groups of architects have already tested ways in which a potential contraction could happen, these perspectives do not seem to have reached the decision makers. This lack of acknowledgment of urban shrinkage is consistent with the literature that reports the resilience of urban growth paradigms in numerous shrinking contexts (Schatz, 2010; Bernt, et al., 2014; Cunningham-Sabot & Roth, 2013) (point 2.3). Also, as presented in Chapter 3 of this thesis, the work of Ryan (2012) has shown that more compact urban fabrics are more resilient to sharp rates of abandonment. This might be the key to understanding how in Genoa and Lisbon, the sharp population losses have not yet alarmed society and its decision makers. Worth noting is how awareness of this problem is more acute in Genoa and some real proposals of dis-densification have already been tested by some groups of experts, even though not exactly embraced by political forces. Once more, in Genoa, this fact is also linked to an especially sensitive hydro-geological situation, where the urban expansion was blind to landscape structures such as important water basins. Although the two cities show a considerable resistance to demolitions, still the rise in vacancy and dereliction is a factor that is present in both cases, in some neighbourhoods, more acutely, as in *São Paulo* in Lisbon. In Lisbon, the political forces are confident that a semi-public initiative, where the Council supports but does not cover the total costs of rehabilitation, will bring results in terms of avoiding large rates of building dereliction. This is an interesting political initiative since it corroborates the rising interest in the trend of

citizens' led initiatives, probably a response to increasingly less powerful public authorities (Madanipour, 2010) (Chapter 5).

Also worth mentioning is the disbelief regarding the recreational use of vacant lots of one of the leading experts in housing programmes in the city of Lisbon (interview with *TC*). These seem to be respected as private proprieties and where the real estate market will eventually intervene. This waiting response can have very negative impacts like urban perforation, further devastation of the area and falling real estate prices (Couch & Cocks, 2011; Rink, et al., 2012; Haase et al., 2014) (point 2.3).

Finally, it was interesting to note that among the real concerns for the future of these two cities, there was the conviction that their intrinsic characteristics, especially in their core areas, will be the key to their revival. It is a confidence based on their beauty:

> "The future…it has to be good…because the situation here is in everything [being] magnificent" P.B. Xavier, 30 January 2013, Lx

> "I don't know…Maybe the problem is exactly the idea that one city has to invent something… to decide… 'I am an industrial city', or 'I am a touristic city', or 'I am an art city'…I don't know. I think this is the problem. Because everything is going to end, sooner or later. I think there is one thing about Genoa. It is a beautiful city. And it is a beautiful city, I mean, since….460 years…And I think Genoa will continue to be beautiful for another 100 years…It is something really good. It is not so usual…For this reason it can attract different kinds of people. Students, artists, workers, young couples, old people that want to spend their life in a beautiful place…I do not think it is a good idea just to decide on one thing." *PC,* 24th May 2013, Ge

> "I am going to say a really naïve thing…but I think that beauty is strong. I am convinced that Genoa is beautiful, but can be more beautiful" *PC,* 24th May 2013, Ge

9.2. Focus Groups

The presence, overall, of a higher proportion of negative references from residents of these four depopulating neighbourhoods transmits the sense that there are many aspects of neighbourhood life that they find somewhat disappointing. As discussed in Chapter 5, Cattell (2001) has indicated that negative perception of the neighbourhood of residence is one the three main factors for the impoverishment of the social network of a community, being the other two poverty and negative social consciousness. All the three elements seem to be present in the studied contexts. Although a negative assessment of one's neighbourhood is not always associated with a negative impact on the stewardship activities that can benefit the common good and the neighbourhood (Woldoff, 2002), a large research body on place attachment seems to indicate this connection (Florek, 2011; Dekker, 2007; Carrus, 2014; Manzo, 2006; Manzo, et al., 2014;

Halpenny, 2010). Moreover, the weakening of communities' social networks seems to be linked with less health and wellbeing, less social resilience to hardship and less chances of improving people's socio-economic levels (Koyama et al., 2014; Kim, et al., 2008).

Although there is a sense of a strong emotional attachment to the studied neighbourhoods (attitudinal attachment), there also seems to be a lack of social diversity and social resources to fight for the protection of the neighbourhood or for residents' wellbeing, since most of these neighbourhoods are dominated by an older segment of the population with particularly low educational levels. Organised civic actions for the protection of the neighbourhood's qualities, or for residents' rights, were only reported in the *São Paulo* neighbourhood, and lead by younger and better educated residents who had moved to the neighbourhood recently. It seems, just as the literature regarding the concept of social capital demonstrates, having a diverse community is essential to the enrichment of the social networks of a community (Portes, 2008) that can then improve an area and lead to greater efficient stewardship actions for its protection (Cattell, 2001).

Although traditional residential communities report more often the daily benefits of supportive actions from and towards neighbours, new residents seemed more committed to taking civic action for the protection of the neighbourhood and, probably, have less emotional investment in establishing or preserving community support. These results are again consistent with the study of Cattell (2001) (Chapter 5), who reported that a very tight-knit community is highly advantageous for daily support and psychological relief, but it can also constrain the existence of civic action groups that fight for the improvement of a neighbourhood's living conditions. These civic actions are normally organised by better off residents and are therefore key to broadening the social networks of poorer and less educated segments of the populations that do not have many opportunities to enrich them (Cattell, 2001). The perpetuation of an ever socially segregated community, with no social enrichment, or no political investment, continues to put these neighbourhoods at greater risk of deterioration, of difficult access to the job market, and therefore, to higher risks of health problems and stress levels (Kawachi et al., 2013).

A lack of security and cleanliness are two consequences of the social disruption and segregation processes, and it is accompanied by physical deterioration and more private and public disinvestment. Jane Jacobs, in her work *The Life and Death of Great American Cities* (1961b), bases her argument on some elements that resonate with the results of this study, namely, the topics of security and community, the existence of diversity of uses, possibilities and opportunities in place, and access to investment, in particular to slow investment, as opposed to major interventions that are very disruptive to the place and its communities. In this study, participants raised most of these topics as key issues for their wellbeing, or lack of it. Issues like the presence of a supportive community; access to more facilities and economic stability (jobs and diverse commerce), and security were reported as having a big impact on the liveability of their neighbourhoods. For Jacobs, it is the presence of a physical architectural environment that

permits the natural vigilance of the streets – "eyes on the streets" – that endows a stronger sense of security and therefore, the possibility of creating tighter community bonds. To illustrate this, and because all her discourse is centred in North American examples, Jacobs (1961b) compares community bonds between neighbours in the suburbs and in the city centre, where people keep a greater eye on what is happening in the street. For Jacobs, the suburban context endows too close a neighbouring proximity, i.e., you are either a friend or an unknown person whereas in more urban contexts, where the street plays a stronger role in people's lives, neighbours know each other, and contact each other daily, always in the public realm, protecting their private life. These daily acquaintances, although not close friendships, are crucial to the maintenance of a neighbourhood's security. In European cities, the typologies typical of suburbs are not so common, especially in southern European cities such as Lisbon or Genoa, where there are high population densities. However, its tourist or entertainment interest – bed&breakfasts, pubs or bars, and "fado houses" – seems to be disruptive for the existing community. If, on the one hand, feeling suspicious of strangers is a typical response of declining societies (Jacobs, 2005), and also, a contradiction of the city's definition of itself (Jacobs, 1961a), - since the city is, by definition, the place where strangers are accepted as part of the context – the activities here discussed, particularly the ones concerned with nightlife, might not offer much to the community itself. On the other hand, neither the bar owners nor the bar users are part of the community, as they do not seem to be interested in contributing to the good quality of the space. Moreover, their presence is felt between 10pm and 6am, when most residents are desperately trying to sleep.

This problem has been reported more strongly in Lisbon, putting populations under greater stress conditions.

Interestingly, according to Maslow's hierarchy of needs (Maslow, 1943), themes like security, employment, health and property (level 2), and friendship/family (community) (level 3), are considered to be the most important needs, after the physiological ones (breathing, food, excretion, sex, sleep) (Figure 64).

It is precisely at this level of needs that these neighbourhoods seem to be vulnerable. Themes at the fourth or fifth levels were seldom or never mentioned. It is true, however, that the questions presented in the focus groups were not seeking to elicit people's views on personal issues such as self-esteem or self-actualization, nevertheless, there were no subliminal clues that revealed good levels of these two groups of needs.

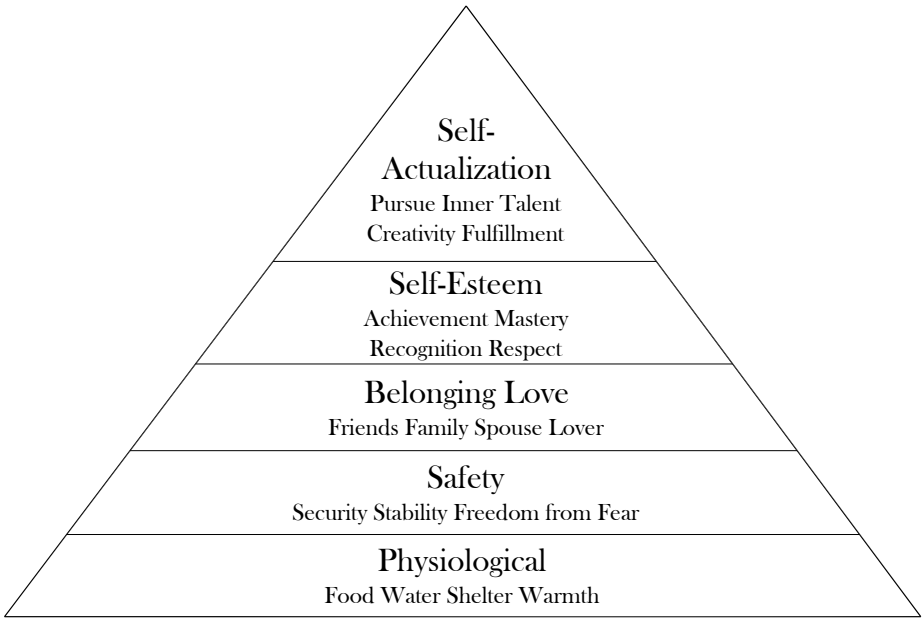


Figure 64. Maslow's Hierarchy of Needs, adapted from www.broadreachtraining.com/articles/

Another very important finding of this study is the presence of an overall positive evaluation of aspects like proximity to the sea, sunlight, architectural assets, and memories of old times (normally, of the lost strength of older communities). Numerous psychological theories and techniques (e.g. Positive Psychology, VIG[66]) corroborate that the quickest and most efficient way to trigger positive change in people's behaviours is through the valorisation of the positive aspects that already exist in place. If that is the case, the focus of investment, human, financial, or other, should be on what residents find more attractive, and would therefore fight for. In the case of this specific research, the communities studied in the depopulated neighbourhoods valued the properties of their environments that were related to a qualitative human and communal environment, with the presence of cultural and architectonic goods, and with the presence of the beneficial natural proprieties of the space, such as contact with the river/sea, access to green spaces, or proper access to sunlight. Therefore, the valorisation of open/public spaces, the activation of better access to the seaside, or more viewpoints to it, or the re-cultivation of natural spaces, can be important themes of action for these communities.

[66] VIG stands for Video Interaction Guidance, a psychotherapeutic evidence-base method that promotes family behaviour change by strengthening familial existing competencies (Doria et al., 2013; Kennedy et al., 2011).

9.3. Conjoint Analysis

The conjoint study tested several hypotheses, namely: depopulation is a factor that can trigger being more attracted to denser cities (hypothesis 3): closer/stronger communities (hypothesis 4); and/or, enclosed and protected open spaces of public or semi-public use (hypothesis 5). And what are the factors that could more effectively attract new residents into these particular depopulating contexts? (hypothesis 6).

With regard to the third hypothesis, that depopulation is linked with feeling more attracted to more compact urban fabrics and denser cities, the results indicate that a less negative utility value at the level 'high population density' was a good predictor for respondents living in depopulating neighbourhoods in Lisbon, even when 'urban typology' showed good resilience towards other socio-economic variables like age, gender, education level, and the presence of children in the household. This seems to indicate that strategies of de-densification should be considered with some caution, and probably in the line with the forensic approaches of Patrick Geddes in Edinburgh's Old Town in the 19th century. In many cities, demolition has been the approach followed in contexts of depopulation, opening space for other opportunities/uses. However, according to the results of this study, and in the historical urban fabrics where the study took place, a large-scale de-densification might not be advisable, unless it conserves the original urban fabric's structure. This finding is in line with recent literature defending the benefits of the 'compact city' for more sustainable, resilient and creative cities (B. Ryan 2012a; Druot et al. 2007).

However, in Genoa, the attribute urban typology presented a higher importance when compared to community, where the presence of wider streets seems to represent the watershed criteria for a higher preference regarding the different levels of urban typologies.

As for the fourth hypothesis, there is an indication that depopulation can function as a triggering factor in making more supportive communities a more attractive aspiration. For the last 30 years, researchers have tended to subscribe to the view that human beings are selfish by nature but recently, the evolutionary researcher David Sloan Wilson, has defended altruism as not only an evolutionist advantage for communities, but also, an innate characteristic of human beings (A. Brown, 2003). In Wilson's words:

> "The fundamental problem of social life is that selfishness beats altruism within a group. But altruistic groups trump selfish groups." (Wilson, quoted in A. Brown, 2003).

This view on human beings' altruism inheritance further corroborates the basis of the social capital theory, meaning that communities faced with difficult times show more resilience when

functioning within one common system of inter-supportiveness. The results from the conjoint study, as a whole, present the attribute 'community' as having an important place when compared with the other five attributes. This attribute is negatively correlated with all other five and rated as more highly important in depopulating neighbourhoods in Lisbon[67]. However, the importance given to community in declining contexts can have, as discussed in Chapter 5 and point 8.2, a dual role. If, on the one hand, social supportiveness can be a crucial factor for better physical and mental health, and for better adaptability to uncertainty, there is also a dark side of supportive communities, especially when it is socially and economically homogenous and the resources available are scarce. In these cases, often the community itself encourages a down levelling of the majority. This is entitled a "bonding" type of social network, which are strong social connections between groups of people with very similar backgrounds, and that increase a sense of territorial 'turf', and being wary of strangers and outsiders (Kawachi et al., 2008). In the discussions with residents (point 8.2), there were frequent references to being suspicious of strangers, like immigrants or tourists, which might signal that in these contexts a "bonding" type of social network is more common. In contrast, the capacity of a particular social network to bridge groups of different socio-economic-educational backgrounds, gender, or racial groups, is one of the most important signs of a healthy community; one that uses social networks to increase the wellbeing of the whole and a fairer distribution of opportunities.

So, although social bonds seem to be crucial for communities living in depopulating contexts, corroborating the studies from Nassauer and Raskin (2014) probably, there is a lot of work to be done in the diversification of bonds in order to endow these communities with more access to resources, such as, access to jobs, which is another of the documented benefits of high levels of social capital (Lin & Erickson, 2008). Therefore, regulating policies targeted at inner cities' depopulating neighbourhoods will probably be more successful in building healthier societies, if community bonds, of bridging type, become a central concern. This means that the disruption of social bonds should be avoided, and simultaneously, the incorporation of structures – community groups, associations, and activities – that allow stronger community diversification of the social networks should be encouraged. If, on the one hand, some degree of gentrification can bring a needed diversity to the social fabric, as has happened in *Mouraria*/Lisbon, probably an overwhelming touristic activity in some of these neighbourhoods, like *São Paulo*/Lisbon and *Santo Estevão*/Lisbon, might be a disruptive factor, since the presence of tourists is not contributing to the enrichment of communities' social capital.

As for the role of open and green spaces as city anchors in depopulating contexts, the data are not entirely consistent and the comprehension/description of a whole picture is somewhat

[67] However, in Genoa the data does not corroborate this hypothesis. This is probably due to differences in the characteristics of the neighbourhoods that were studied.

difficult to achieve. On the one hand, depopulating contexts do not present any significant differences in the preferences for any levels of the attributes 'open and green space typology/quality', and, for almost 60% of the respondents living in depopulating neighbourhoods who reported 'squares and small gardens' as the dominant open/green spaces' typologies in their neighbourhood, would desire to live in a neighbourhood with other typologies of open/green spaces. However, if focusing only on the data from Lisbon, this percentage decreases to 40%, signalling a smaller degree of dissatisfaction with the present conditions.

On the other hand, the data show fairly strong degrees of correlations between levels like 'squares and small gardens' and 'neighbours as friends' (r=0,49), and; 'squares and small gardens' and 'neighbours as strangers' (r=-0,48), indicating that public, protected and enclosed typologies of green spaces are preferred by respondents reporting high preferences for a strong sense of community. As alluded to before, the sense of community is precisely one of the features that presents a significant difference between depopulating and growing neighbourhoods, namely, in Lisbon's sample, where residents of depopulating neighbourhoods value 'community' more. This seems to indicate that in depopulating neighbourhoods in Lisbon, depopulation is indirectly linked with respondents feeling more attracted to the level 'squares and small gardens'. These correlations are consistent with historical accounts of the evolution of public spaces according to demographic shifts (Chapter 5), with economic and population downturn periods seeming to be linked to a higher prevalence of open and green spaces of smaller dimensions and enclosed character. Moreover, the outputs from the two last questions indicate that in depopulating environments, people are more concerned with a quick access to green spaces and to a good quality of green spaces, than with the typologies of open/green spaces. However, the differences in the results in Genoa and Lisbon, and the data reference to the 'willingness to change' in depopulating neighbourhoods, signals that more data is needed to better understand the role of open spaces for communities living in depopulating environments.

Focusing on the group of house searchers in order to address research hypothesis number six, the data show a significantly higher importance given to the attribute 'open/green spaces' quality' when compared to both depopulating and growing environments. This indicates that open/green spaces of good quality are key features in attracting new residents into neighbourhoods with population loss issues[68].

An extensive literature corroborates these findings, revealing that the presence of green spaces is linked with higher housing prices (Morancho, 2003; Altunkasa & Uslu, 2004; Bolitzer & Netusil, 2000; Tyrväinen & Miettinen, 2000) especially when the green spaces have high ecological value higher (Bark et al., 2009) and are near dense urban fabrics closer to the business centre of a city (Anderson & West, 2006).

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Moreover, the fact that the attributes related to open and green spaces, both public and semi-public, are more important for younger and more educated participants, especially those currently in search of a new house, indicates that open/green spaces of good quality are not only crucial to attract new residents, but especially residents that will further enrich the community's diversity, and therefore social capital, which is currently dominated by older, less well educated populations. If a more diverse community is normally linked with higher levels of social capital, and, in its turn, social capital is linked with better physical and mental health levels, also, the presence of green spaces of better quality is related to health benefits, namely, lower levels of stress in deprived communities (Roe, Thompson, et al., 2013) (Chapter 4). This indicates that improving the attractiveness of a neighbourhood by investing in its green spaces can work as a two-way route to the improvement of residents' levels of health. Therefore, green spaces seem to be a good political tool for citizens wellbeing in urban depopulating contexts.

For landscape architects, the outputs of this research are probably just a small step towards understanding the effects of depopulation in the way a designer should act in these contexts. However, three basic ideas come out of this research. Firstly, the levels of community disruption should be minimised in any intervention in these contexts. Secondly, when facing depopulating communities with strong preferences for having friendly neighbours, the presence of open spaces of an enclosed and public nature should be preserved, even if not maintained as the prevalent open space typology. And finally, well maintained open/green spaces are particularly important to the enrichment of depopulating communities and consequently, to the potential improvement of dwellers' physical and mental health.

10. Conclusions

The aim of this research is to better understand how sharp depopulation, in dense city cores, might affect the future development of urban fabrics, by means of changing the needs of individual residents and the perspectives of general stakeholders. More specifically, this research focuses on how possible changes to the urban fabric might alter the role, and dominant typologies, of open and green spaces in neighbourhoods that are going through processes of demographic decline. By better understanding residents' needs and preferences regarding basic factors of change in a neighbourhood, and in its open and green spaces, when changes are then made to these urban contexts, they might better meet citizens' needs under these new conditions, acknowledging that there is not only one typology of open/green space that responds to all citizens' needs.

Although it might seem anachronistic to study urban depopulation in an era when the urban population continues to rise, and it has never been so high, the United Nations predicts that not all cities will grow at the same rate. Although mega cities are expected to continue to attract increasing numbers of residents, intermediate cities are at higher risk of stagnating or even having their population size decrease, particularly in developed countries.

This research adds to the literature on shrinking cities in different ways. One key way is by focusing on southern European cities. As previously mentioned, most of the literature that focuses on urban depopulation has been produced in Germany, the United Kingdom, the USA and Canada. However, Europe's peripheral cities, relative to the London-Milan axis, are the ones where this phenomenon is more common, and southern peripheral European cities are among those also affected by population declines. It is relevant, therefore, to expand the existing research by reflecting upon the situation in these cities, since differences in the typologies of the urban fabric, socio-economic situations and cultural backgrounds can play an important role. Expansion of the research on shrinking cities is probably the best way to understand the common key features, impacts and challenges that these cities face, and to gain a wider comprehension of these phenomena in different contexts. Moreover, this research applies established methods to this relatively new research problem for the first time, namely, by the use of conjoint analysis to

compare preferences with regard to urban dwelling settlements between residents of depopulating and non-depopulating urban contexts.

This research was then based on three main interrogations from which seven hypotheses were derived (point 7.1):

(1) Often depopulation results in demolitions that profoundly reshape city forms. Based on this premise, this research explored the hypothesis of future changes in the levels of urban density in Genoa and Lisbon, the perspectives of stakeholders, and the preferences of residents and non-residents with regard to denser, or less dense, urban scenarios (Chapters 2, 3, 8 and 9).

(2) Historical periods of demographic contraction and economic decline are associated with smaller, enclosed and more functional typologies of open green spaces, such as the kitchen, or medicinal gardens, of medieval monasteries. In acknowledging this, this research has tested residents' preferences, and that of potential new residents, with regard to different typologies of open and green spaces, namely, more or less enclosed ones, with different levels of privacy (Chapters 4 and 9).

(3) The social impact of depopulation is one of the more frequent references in the literature regarding population decline, with social segregation, and community disruption being associated with the processes of population loss. The neighbourhoods studied in this research are typical working class areas, with strong senses of community, even if in the last decades that tight-knit community has loosened a bit. The third hypothesis tests participants' preferences concerning the proximity of a community for those living in depopulating and non-depopulating contexts (Chapters 5 and 9).

To test these main interrogations, three different methods, both qualitative and quantitative, were used: interviews with experts and other stakeholders; focus groups with residents; and conjoint analysis comparing the preferences of participants living in depopulating neighbourhoods, growing neighbourhoods, and also house searchers. The use of these methods was sequential, i.e., the two first methods were used to develop the third one (conjoint analysis) (Chapter 7).

One of the first findings from this research is based on the interviews with experts and stakeholders (point 8.1). From those it is possible to understand that widespread processes of demolition are not likely to occur in these two southern European cities. Nevertheless, in case they do, it seems more likely that they will have a particular focus and not be widespread. This aligns with Brent Ryan's social urbanism (2012) and Jean Philippe Vassal's addition theory - "Plus"- (Druot, 2007), that propose the use of particularadditions to regenerate old and derelict spaces as opposed to subtractive approaches. However, these theories do not respond to the ecological and energy efficiency problems of maintaining half empty cities, especially in cities with increasingly meagre financial resources (Chapter 3). Again, dense city centres represent

assets that are conducive to sustaining a more energy-friendly city, so the main challenge is, in fact, to keep their current residents and to be able to attract more, especially younger and more skilled ones.

The second and third methodological approaches used in this research address the concerns, above, by exploring the perspectives and preferences of residents of shrinking neighbourhoods (point 7.4.2), compared to non-residents, by exploring their preferences with regard to hypothetical residential neighbourhood (point 7.5).

Regarding the second methodological approach, a series of group discussions was organized between residents of four shrinking neighbourhoods, two in Lisbon and two in Genoa, in order to better understand their main concerns about their neighbourhood. The results suggest that the presence, or the sense of loss, of a strong and supportive community, is the primary concern in Lisbon. Moreover, the issues that were mentioned most frequently were: a lack of a diversity of nearby facilities, economic stability and job access, the lack of security and cleanliness. As for green spaces, they were mentioned several times, but the issue was pre-determined, or triggered, by the questions, so it is less obvious if it is a genuine priority for residents, or at least, if it can be compared with other concerns. However, the discussions revealed a general dissatisfaction with public spaces, namely, the green spaces that are available. In fact, about 60% of all the references made by residents were in a negative tone, revealing some degree of overall dissatisfaction with the neighbourhoods. The themes mentioned in a more positive tone were the ones regarding the presence of water elements, good sunlight, memories of old times; cultural goods and the aesthetic qualities of the space; and again, and more strongly, the presence of a tight supportive community (points 8.2 and 9.2).

As for the third methodological approach – conjoint analysis –, the results corroborate the findings from the focus group discussions, in the sense that, again, having a "supportive community" was a leading one. However, there were differences between the two cities, since although in Lisbon this was the leading theme, in Genoa, the urban typologies of the neighbourhood are more important to residents than having a supportive community. Therefore, any intervention in these neighbourhoods, especially in Lisbon, should be greatly concerned with keeping a community balance in place. As for the expected differences between the preferences of participants living in depopulating and growing neighbourhoods, they were limited to the Lisbon case study. In Lisbon, residents of depopulating neighbourhoods seem to have a significantly greater preference for a more compact/denser urban fabric and for a more tight-knit community, which partly confirms hypotheses numbers four and five. However, these results were not confirmed in Genoa, so generalizations are not possible. Nevertheless, although there was no significant difference between the preference for enclosed open spaces in depopulating and non-depopulating neighbourhoods, which did not permit confirmation of hypothesis number six, the preference of tight-knit communities seems to be linked with a preference for smaller and more

enclosed open spaces, and the declining neighbourhoods studied in this research were characterised by these types of preference. So although the hypothesis has not been confirmed, there are indirect signs that those communities very dependent on the proximity of their social networks tend to prefer open spaces on a more intimate scale, and open to the public. Finally, the presence of good quality open/green spaces seems to be one of the most important factors in attracting a younger and better educated group of potential newcomers (points 8.3 and 9.3). This last finding is particularly important to succeed in attracting younger and more skilled residents into these communities. This could enrich and socially diversify these places, potentially contributing to all residents' better levels of health, according to principles of social capital, namely, by reinforcing the bridging power of one particular community (Chapter 5).

In this perspective, green spaces are potentially a two-way tool for the enhancement of urban citizens' health in depopulating neighbourhoods: firstly, by directly influencing people's physical and mental health, and secondly, by raising the communities' social efficacy – i.e., the capacity of a community to solve its own problems and protect its members from adverse times – and increase the sense of belonging of its members. Since the evidence shows that this sense of belonging in relation to a thriving and diverse community in itself boosts better health, the presence of high-quality green spaces can affect citizens' health and wellbeing positively twice.

The opportunity that depopulation can bring to cities' reshaping in a way that could provide a better quality of life for its citizens, is, however, difficult to achieve. Radical demolitions, namely, in the USA, do not seem to have produced benefits for the communities living in these neighbourhoods. Brent Ryan, who explores this theme in his research, maintains the failure of the North American approach is that it is based on a casuistic contraction, i.e., one that followed dereliction and abandonment only, without being armed with a bigger picture plan or a design for the cities. Moreover, the liberal market economy does not allow for direct investment into these communities, at least in North America, leaving these communities profoundly unprotected. The northern European context is quite different, and the cases of Leipzig and Dresden show a planned process of de-densification, based on green infrastructure consolidation, that produced positive results, i.e., these two cities have become more attractive for younger people in the last decades. The southern European cases are very different again, showing denser urban fabrics and suburbs dominated by high-rise buildings. This research has explored two cases of shrinking cities in southern Europe – Lisbon and Genoa – mainly by addressing the needs of those who daily face and live with abandonment of once dense inner-city cores. It is hoped that by having knowledge of their perspectives, and establishing what their new-triggered needs are in these contexts, it might enlighten the possible urban reshaping of these urban settlements according to their social structure, citizens' needs and urban fabric heritage.

Theoretically, there are two models for addressing forthcoming sharp changes in urban shape in depopulating contexts: the consolidation model, and the dispersion model (Chapter 3). In cities

like Detroit or Cleveland, the dispersion model is already in place through a spontaneous expansion of the lot of citizens still living in affected neighbourhoods into abandoned ones (Schwarz, 2008; Armborst, 2008). Although presenting a possible response to city vacancy in a Northern American suburban contexts, this strategy will not respond to the vacancy of the whole city (Chapter 3), or to the vacancy of cities with other urban typologies.

In the context of southern European cities, urban depopulation is a less visible phenomenon due to higher urban densities and existing urban typologies. However, the impacts of depopulation, as, for example, the fragmentation of urban communities, is still a very relevant consequence of these processes. The nature of the urban fabrics that exist in the studied neighbourhoods – multi-dwelling tenements within (sometimes very small) perimeter blocks – in Lisbon and in Genoa, and the results of the three methods used in this research, do not favor a dispersion model but a consolidation one. This does not necessarily mean that the opportunities opened up by the shrinking cities theme are not present in these Mediterranean contexts, for example, through the idea of urban islands surrounded by greener areas, as suggested by some members of the *genova meno uno per cento* group. In the words of Schwarz (2008), we would be developing "micro-cities within a city". Within these micro-cities, there could be high levels of density with protected outdoor spaces with greater community affordances, but also, close access to green spaces of wider dimensions, which is crucial to stress relief and provides other health and wellbeing benefits for citizens.

Such a model would bring, however, some ethical issues, probably concerning the conservation of architectural heritage and citizens' sense of belonging if dislocations were necessary. It is therefore important to test these theoretical assumptions in specific cities to better understand how feasible such models could be. Specifically, the Mediterranean context should be further explored since the topic is not acknowledged, usually. In that sense, this study is a contribution to a better comprehension of these contexts and how they should be considered differently.

In the case of Lisbon, the mapping of Alfama by Gonçalo Ribeiro Teles's in 1934 (point 7.3.1) shows how the density of this neighbourhood was intensified in the 19th century by the expansion of buildings to the inner courtyards of the small perimeter blocks that compose the neighbourhood. So, in the case of this declining neighbourhood, a clearance strategy of the inner courtyards of the small perimeter blocks could be beneficial for citizens, for the ecological balance, and for the overall attractiveness of the neighbourhood, adding spaces of wellbeing for residents.

In conclusion, this research has contributed to the overall discussion on shrinking cities by exploring the consequences of depopulation in less well known contexts, namely, two cities of southern Europe, by using tested methodologies in these contexts for the first time. By presenting how green typologies are intrinsically linked with preferences for community closeness, and how

that closeness is the key attribute for communities living in depopulating contexts, the outputs of this research are a reminder of how future interventions in depopulating neighbourhoods in southern European contexts should consider different typologies of open spaces according to the communities that are already there.

11. Limitations and Further Research

Cities are always unique spaces with particular histories, architecture and social dynamics. The comparison between depopulating environments in two different cities, therefore, is acknowledged to be somewhat complex and a possible source of differences in the results. The fact that in Lisbon, the neighbourhoods studied, both the depopulating and growing ones, are more similar in form and position in the city might make them stronger case studies than in Genoa. Also, in Genoa, the sampling process was less controlled for, whereas in Lisbon, there was a tighter approximation between population and sample profiles. Data from Lisbon seems, therefore, more reliable than that sourced in Genoa. Also, this fact reinforces the pertinence of extending the study to other cities across Europe, or beyond. This could help to achieve a comparable perspective on the preferences of citizens living in depopulating contexts across different geographical regions, but more importantly, it could help to better understand the similarities and differences of the impact of the depopulating process from their perspective.

Regarding the conjoint questionnaire itself, one of the first decisions while building the conjoint questionnaire was whether or not to use images. After some preliminary investigation, it was decided to use only written descriptions. Would the results have been different if images had been used? This is a question that could be addressed in a further exploration of this topic. Moreover, the ACBC study is a cognitive demanding type of questionnaire, even when the tasks were reduced to the minimum. For this reason, many respondents might have responded automatically and inconsistently to many questions when tired of the tasks in a over-simplification of the process. However, the presence of the researcher in most questionnaires is expected to have lowered this always-present risk.

Again, with regard to the questionnaire design, knowing now the positive response that the attribute ‘community’ gathered in the study, it would be interesting to repeat the process without this attribute and test if the other attributes in the study would balance differently.

Moreover, it would also be a valuable addition to complement the results of this research with behaviour mappings in order to compare citizens’ preferences, i.e., a more cognitive exercise, and their actual preferences in action, i.e., their behaviours. Behavioral mappings could

also be useful for a more detailed understanding of the affordances of space that lead to a better sense of community in outdoor spaces, following William Whyte's research studies. This analysis could be relevant not only to address neighbourhoods undergoing consistent population losses, but also, to address the crescent numbers of depressed urban citizens. Depression is a serious illness and a disabling condition. If we can achieve a better understanding of what the key features are that promote human interaction and lessen human isolation in our cities, that would be particularly interesting.

On a more theoretical note, the historical overview developed in Chapter 4 was one of the most challenging processes of this research and it would also be extremely relevant to extend the comprehension of the evolution of the typologies of open and green spaces according to population fluxes. This might not only shed light on the debate around the mutations that might be expected in the open and green spaces' typologies in future shrinking cities, but also shed light on the history of gardens themselves, through a process of parallel contextualization.

12. References

Abbot, A., 2012. Urban Decay. *Nature*, 490, pp.162–164.

Albro, S. & Burkholder, S., 2013. Mind the Gap: Tools for a Parcel-Based Stormwater Management Approach. In *Shrinking Cities I Expanding Landscapes Conference*. University of Edinburgh, UK.

Allaert, G., 2001. A Spatial-Ecological Approach to Neighbourhoods in Crisis. In Devuyst, Dimitri; Hens, Luc; Impens, R., eds. *Neighbourhoods in Crisis and Sustainable Urban Development*. Brussels: VUB University Press, pp. 29–37.

Allweil, Y., 2007. Shrinking Cities: Like a Slow-Motion Katrina. *Places*, 19, pp.91–94.

Altunkasa, M.F. & Uslu, C., 2004. The Effects of Urban Green Spaces on House Prices in the Upper Northwest Urban Development Area of Adana (Turkey). *Turkish Journal of Agriculture & Forestry*, 28, pp.203–209.

Alves, S. et al., 2008. Preferences of older people for environmental attributes of local parks. *Facilities*, 26(11/12), pp.433–453.

Anderson, S.T. & West, S.E., 2006. Open space, residential property values, and spatial context. *Regional Science and Urban Economics*, 36(6), pp.773–789.

Andrade, C.C. & Devlin, A.S., 2015. Stress reduction in the hospital room: Applying Ulrich's theory of supportive design. *Journal of Environmental Psychology*, 41, pp.125–134.

Anon, 2011. *Censos 2011: Parque Habitacional (Resultados Pré-Provisórios)*, Lisbon.

Anon, 2012a. *Census 2011 Resultados Definitivos - Região Lisboa*, Lisboa.

Anon, 2008. *Contributos para o Plano Estratégico de Habitação: Diagnóstico e Proposta para uma Estratégia de Habitação 2008/2013*, Lisbon.

Anon, 1972a. Crusades. *The New Caxton Encyclopedia*, pp.1706–1707.

Anon, 2014. *Detroit Future City Strategic Framework. The Neighbourhood Element: The City of Distinct and Regionally Competitive Neighbourhoods*, Detroit.

Anon, 2012b. *Detroit Future City: Detroit Strategic Framework Plan*, Detroit.

Anon, 2009. *Diagnóstico Social de Lisboa*, Lisbon.

Anon, 2012c. Forum TSF. Available at: http://podcast.cdn.tsf.pt/for_20120418.mp3 [Accessed April 18, 2012].

Anon, 1924. Génova. *Enciclopedia Universal Ilustrada, Europeo-Americana,*, pp.1261–1267.

Anon, 2012d. Love and Allegory. *Studies in the History of Gardens & Designed Landscapes: An International Quarterly*, 22(2), pp.128–133.

Anon, 1972b. University. *The New Caxton Encyclopedia*, pp.5834–5835.

Armborst, T., 2008. Improve your lot! In S. Rugare & T. Schwarz, eds. *Cities Growing Smaller*. Cleveland: Cleveland, OH : Cleveland Urban Design Collaborative, College of Architecture

and Environmental Design, Kent State University.

Armstrong, H., 2006. Time, Dereliction and Beauty: An Argument for 'Landscapes of Contempt'. In *IFLA Conference Papers*. Sydney, pp. 116–127.

Arvati, P. & Molettieri, E., 2007. *Novecento Genovese: Genova attraverso i censimenti 1951-2001*, Genova.

Aspinall, P., 2010. On Environmental Preference: Applying Conjoint Analysis to Visiting Parks and Buying Houses. In C. Ward Thompson, P. Aspinall, & S. Bell, eds. *Innovative Approaches to Researching Landscape and Health*. New York: Routledge, pp. 181–210.

Aspinall, P. et al., 2010. Preference and relative importance for environmental attributes of neighbourhood open space in older people. *Environment and Planning B: Planning and Design*, 37(6), pp.1022–1039.

Aspinall, P. et al., 2007. Quality of life and relative importance: A comparison of time trade-off and conjoint analysis methods in patients with age-related macular degeneration. *British Journal of Ophthalmology*, 91(6), pp.766–772.

Audirac, Ivonne; Fol, S. & Martinez-Fernandez, C., 2011. Shrinking Cities in a Time of Crisis. *Berkeley Planning Journal*, 23 (1).

Augurzky, B., Schmidt, C.M. & Schmitz, H., 2010. *Second State of European Cities Report*, Brussels.

Azevedo, A.J.A. De, Custódio, M.J.F. & Perna, F.P.A., 2013. 'Are you happy here?': The relationship between quality of life and place attachment. *Journal of Place Management and Development*, 6(2), pp.102–119.

Banzhaf, E., Richert, J. & Zabojnik, A., 2012. Monitoring and Managing Brownfields in the city of Leipzig. , p.134.

Baridon, M., 1998. Âge Baroque. In *Les Jardins: Paysagistes, jardiniers, poète*. Paris: Robert Laffont.

Bark, R.H. et al., 2009. Habitat preservation and restoration: Do homebuyers have preferences for quality habitat? *Ecological Economics*, 68(5), pp.1465–1475.

Barthel, S. & Isendahl, C., 2013. Urban gardens, agriculture, and water management: Sources of resilience for long-term food security in cities. *Ecological Economics*, 86, pp.224–234.

Bartlett, P.F., 2005. Reconnecting with Place: Faculty and the Piedmont Project at Emory University. In P. F. Bartlett, ed. *Urban Place: Reconnecting with the Natural World*. Massachusetts: MIT Press, pp. 39–60.

Bell, S. et al., 2010. Migration and Land Use Change in Europe: A Review. *Living Reviews in Landscape Research*, 4(2), pp.5–49.

Bell, S., 2005. Nature for People: The Importance of Green Spaces to Communities in the East Midlands of England. In I. Kowarik & S. Korner, eds. *Wild Urban Woodlands: New Perspectives for Urban Forestry*. Berlin: Springer, pp. 81–94.

Bell, S., Thompson, C.W. & Travlou, P., 2003. Contested views of freedom and control: Children, teenagers and urban fringe woodlands in Central Scotland. *Urban Forestry & Urban Greening*, 2, pp.88–99.

Benis, K., 2011. *Vielas de Alfama: Entre Revitalização e Gentrificação*. Universidade Técnica de Lisboa.

Bernt, M. et al., 2014. How does(n't) Urban Shrinkage get onto the Agenda? Experiences from Leipzig, Liverpool, Genoa and Bytom. *International Journal of Urban and Regional Research*, 38(5), pp.1749–1766.

Bini, P.C., Cortese, C. & Violante, A., 2011. *Shrink Smart. The Governance of Urban Shrinkage in Genoa*, Roma.

Blazhenkova, O., Becker, M. & Kozhevnikov, M., 2011. Object–spatial imagery and verbal cognitive styles in children and adolescents: Developmental trajectories in relation to ability. *Learning and*

Individual Differences, 21(3), pp.281–287.

Bloom, D.E., 2011. 7 Billion and Counting. *Science*, 333(6042), pp.562–69.

Bolitzer, B. & Netusil, N.R., 2000. The impact of open spaces on property values in Portland, Oregon. *Journal of Environmental Management*, 59(June 1998), pp.185–193.

Bontje, M., 2004. Facing the challenge of shrinking cities in East Germany: The case of Leipzig. *GeoJournal*, 61, pp.13–21.

Bouzarovski, S. et al., 2010. Household Structure, Migration Trends, and Residential Preferences in Inner-city León, Spain: Unpacking the Demographies of Reurbanization. *Urban Geography*, 31(2), pp.211–235.

Brandon, P., 1969. Medieval clearances in the East Sussex Weald. *Transactions of the Institute of British Geographers*, 48(48), pp.135–153.

Braubach, M. & Fairburn, J., 2010. Social inequities in environmental risks associated with housing and residential location - A review of evidence. *European Journal of Public Health*, 20(1), pp.36–42.

Brauch, H.G., 2003. Urbanization and Natural Disasters in the Mediterranean: Population Growth and Climate Change in the 21st Century. In A. Kreimer, M. Arnold, & A. Carlin, eds. *Building Safer Cities: The Future of Disaster Risk*. Washington, D. C.: World Bank, pp. 149–164.

Braun, V. & Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), pp.77–101.

Brown, A., 2003. 'I wanted to show how niceness evolves'. *The Guardian*, 24 July, 2003.

Brown, B., 2003. Place attachment in a revitalizing neighborhood: Individual and block levels of analysis. *Journal of Environmental Psychology*, 23(3), pp.259–271.

Brownlow, A., 2006. An archaeology of fear and environmental change in Philadelphia. *Geoforum*, 37(2), pp.227–245.

Campos, A., 2013. Gender differences in imagery. *Personality and Individual Differences*, 59, pp.107–111.

Carlino, G. a., Chatterjee, S. & Hunt, R.M., 2007. Urban density and the rate of invention. *Journal of Urban Economics*, 61(3), pp.389–419.

Carrus, Giusepe, et al, 2014. Place Attachment, Community Identification, and Pro-Environmental Engagement. In *Place Attachment*. London and New York: Routledge, pp. 154–161.

Casali, L., 2012. Alluvioni, Burlando: «I fondi non bastano». *Il Secolo XIX*.

Cattell, V., 2001. Poor people, poor places, and poor health: The mediating role of social networks and social capital. *Social Science & Medicine*, 52, pp.1501–1516.

Chiaramonte, A., 2014. Alluvione Genova, il disastro nel 2011 provocò 6 vittime. L'ex sindaco a processo. *Il Fatto Quotidiano*.

Christie, N., 2000. Lost Glories? Rome at the End of Empire. In J. Coulston & H. Dodge, eds. *Ancient Rome: The Archaeology of the Eternal City*. Oxford: Oxford University School of Archaeology, pp. 306–331.

Clark, P., 2006. *The European city and green space: London, Stockholm, Helsinki and St. Petersburg, 1850-2000*, Ashgate.

Coates-Stephens, R., 2015. Housing in Early Medieval Rome, 500-1000 AD. *British School at Rome*, 64(1996), pp.239–259.

Coombes, E., Jones, A. & Hillsdon, M., 2010. The relationship of physical activity and overweight to objectively measured green space accessibility and use. *Social science & medicine (1982)*, 70(6), pp.816–22.

Couch, C. & Cocks, M., 2011. *Shrink Smart. The Governance of Urban Shrinkage in the Liverpool City-Region, United Kingdom*, Liverpool.

Craveiro, T. et al, 2009. *ATLAS do Programa Local de Habitação*, Lisboa.

Creswell, J., 1994. *Research Design: Qualitative and Quantitative Approaches*, London: SAGE Publications, Ltd.

Cunningham-Sabot, E. & Roth, H., 2013. Growth Paradigm Against Urban Shrinkage: A standardized fight? The cases of Glasgow (UK) and Saint-Etienne (France). In Pallagst, Karina; Martinez-Fernandez, Cristina; Wiechmann, T., eds. *Shrinking Cities: International Perspectives and Policy Implications*. New York: Routledge, pp. 99–124.

Curry, J., 1996. *Sawtooth Software Understanding Conjoint Analysis in 15 minutes*, Available at: http://www.sawtoothsoftware.com/support/technical-papers/general-conjoint-analysis/understanding-conjoint-analysis-in-15-minutes-1996

Danaher, P.J., 1997. Using conjoint analysis to determine the relative importance of service attributes measured in customer satisfaction surveys. *Journal of Retailing*, 73(2), pp.235–260.

Debord, K. et al., 2002. Paying attention to the outdoor environment is as important as preparing the indoor environment. *Young Children*, 57(3), pp.32–35.

Dekker, K., 2007. Social Capital, Neighbourhood Attachment and Participation in Distressed Urban Areas. A Case Study in The Hague and Utrecht, the Netherlands. *Housing Studies*, 22(3), pp.355–379.

Deming, M.E. & Swaffield, S., 2011. *Landscape Architecture Research: Inquiry, Strategy, Design*, New Jersey: Wiley.

Dettmar, J., 2005. Forests for Shrinking Cities? The Project 'Industrial Forests of the Ruhr'. In I. Kowarik & S. Korner, eds. *Wild Urban Woodlands: New Perspectives for Urban Forestry*. Berlin: Springer, pp. 263–276.

Diamond, J., 2005. *Collapse: How societies choose to fail or survive*, London: Penguin Books.

DiCicco-Bloom, B. & Crabtree, B.F., 2006. The qualitative research interview. *Medical Education*, 40(4), pp.314–321.

Doria, M. V. et al., 2013. Explanations for the Success of Video Interaction Guidance (VIG): An Emerging Method in Family Psychotherapy. *The Family Journal*, 22(1), pp.78–87.

Dorling, D., 2013. *Population 10 Billion: The coming demographic crisis and how to survive it*, London: Constable.

Druot, F., Lacaton, A. & Vassal, J.-P., 2007. Saint Nazaire, Petit Maroc. In J.-P. Druot, Frédéric, Lacaton, Anne, Vassal, ed. *Plus*.

Dufhues, T., Geppert, M. & Buchenrieder, G., 2003. Combining quantitative and participatory methods in Conjoint Analysis: Designing micro savings in Northern Vietnam. *Savings and Develoment (Giodano Dell'Amore Foundation)*, 27(3), pp.281–294.

Dunham-Jones, E., 2005. Suburban retrofits, demographics, and sustainability. *Places*, 17(2), pp.8–19.

Ehrlich, P., 1968. *Population Bomb*, New York: Ballantine Books.

EEA (European Environmental Agency), 2009. *Ensuring quality of life in Europe's cities and towns*, report no. 5. Office for Official Publications of the EU, Luxembourg.

Evangelia, 2013. The Hybrid Landscape of Public Space. In *Shrinking Cities I Expanding Landscapes Conference*. Edinburgh.

Faria, N., 2013. Portugal, um país que se esvaziou. *Público*, pp.2–30.

Ferreira, M. et al., 2005. *Habitação e Mercado Imobiliário na Área Metropolitana de Lisboa* 2nd editio. H. Caria, ed., Lisboa: Câmara Municipal de Lisboa.

Field, A., 2000. *Discovering Statistics using SPSS* 3rd ed., London: SAGE Publications, Ltd.

Fishburn, P.C. & Fishburn, P.C., 1986. Utility theory. *Management Science*, 14(5), pp.335–378.

Florek, M., 2011. No place like home: Perspectives on place attachment and impacts on city management. *Journal of Town and City Management*, 1(4), pp.346–355.

Florida, R., 2002. *The Rise of the Creative Class*, New York: Basic Books.

Forester, J., 2009. Policy Analysis as Critical Listening. In R. Goodin, M. Moran, & M. Rein, eds. *Oxford Handbook of Public Policy*. Oxford: Oxford University Press, pp. 1–26.

França, J.A., 2008. Pré-História de Lisboa. In *Lisboa: História Física e Moral*. Lisboa: Livros Horizonte, pp. 13–29.

Fritsche, M. et al., 2007. Shrinking Cities: A New Challenge for Research in Urban Ecology. In M. Langner & W. Endlicher, eds. *Shrinking Cities: Effects on Urban Ecology and Challenges for Urban Development*. Peter Lang, pp. 17–33.

Ganning, J.P. & Tighe, J.R., 2014. Assessing the Feasibility of Side Yard Programs as a Solution to Land Vacancy in U.S. Shrinking Cities. *Urban Affairs Review*, p.1078087414555435–.

Gleason, K.L., 1994. Porticus Pompeiana: A new perspective on the first public park of ancient Rome. *The Journal of Garden History*, 14(1), pp.13–27.

Gobster, P.H., 1998. Urban parks as green walls or green magnets? Interracial relations in neighborhood boundary parks. *Landscape and Urban Planning*, 41(1), pp.43–55.

Goldstone, J.A., 2010. The New Population Bomb. *Foreign Affairs*, 89(1), pp.31–43.

Gorse, G.L., 2012. Genoese Renaissance villas: A typological introduction. *The Journal of Garden History*, 3(4), pp.255–280.

Grahn, P. & Stigsdotter, U.K., 2010. The relation between perceived sensory dimensions of urban green space and stress restoration. *Landscape and Urban Planning*, 94(3-4), pp.264–275.

Gregory, J.M., Lowe, J.A. & Tett, S.F.B., 2006. Simulated Global-Mean Sea Level Changes over the Last Half-Millennium. *Journal of Climate*, 19(18), pp.4576–4591.

Guerra, I. & Mateus, A., 2008. *Contributos para o Plano Estratégico de Habitação: Políticas de Habitação: 2008-2013*, Lisbon.

Gustafsson, A., Herrmann, A. & Huber, F., 2000. Conjoint Analysis as an Instrument of Market Research Practice. In F. Gustafsson, Anders; Herrmann, Andreas; Huber, ed. *Conjoint Measurement: Methods and Applications*. Berlin: Springer, pp. 6–45.

Gwinn, R.P., Norton, P. & McHenry, R., 1992. Diocese. *Britannica*.

Haase, D. et al., 2012. Actors and factors in land-use simulation: The challenge of urban shrinkage. *Environmental Modelling and Software*, 35, pp.92–103.

Haase, D. et al., 2008. Guidelines for the 'Perfect Inner City'. Discussing the Appropriateness of Monitoring Approaches for Reurbanization. *European Planning Studies*, 16(8), pp.1075–1100.

Haase, D., Piorr, A., et al., 2013. Tools for Modelling and Assessing Peri-Urban Land Use Futures. In K. Nilsson et al., eds. *Peri-Urban Futures: Scenarios and Models for Land Use Change in Europe*. Verlag Berlin Heidelberg: Springer, p. 452.

Haase, D., Haase, A. & Rink, D., 2014. Conceptualizing the nexus between urban shrinkage and ecosystem services. *Landscape and Urban Planning*, 132, pp.159–169.

Haase, D., Kabisch, N. & Haase, A., 2013. Endless Urban Growth? On the Mismatch of Population, Household and Urban Land Area Growth and Its Effects on the Urban Debate. *PLoS ONE*, 8(6), p.e66531.

Haase, D., Lautenbach, S. & Seppelt, R., 2010. Modelling and simulating residential mobility in a shrinking city using an agent-based approach. *Environmental Modelling & Software*, 25(10), pp.1225–1240.

Hadavi, S., Kaplan, R. & Hunter, M.C.R., 2015. Environmental affordances: A practical approach

for design of nearby outdoor settings in urban residential areas. *Landscape and Urban Planning*, 134, pp.19–32.

Halpenny, E. a., 2010. Pro-environmental behaviours and park visitors: The effect of place attachment. *Journal of Environmental Psychology*, 30(4), pp.409–421.

Hansmann, R., Hug, S.-M. & Seeland, K., 2007. Restoration and stress relief through physical activities in forests and parks. *Urban Forestry & Urban Greening*, 6(4), pp.213–225.

Haq, S.M.A., 2011. Urban Green Spaces and an Integrative Approach to Sustainable Environment. *Journal of Environmental Protection*, 02(05), pp.601–608.

Hartig, T. et al., 2014. Nature and health. *Annual Review of Public Health*, 35, pp.207–228.

Harvey, J., 1981. *Medieval Gardens*, London: B.T.Batsford.

Heckathorn, D.D., 2011. Comment: Snowball versus respondent-driven sampling. *Sociological Methodology*, 41, pp.355–366.

Hegerl, G.C. et al., 2006. Climate change detection and attribution: Beyond mean temperature signals. *Journal of Climate*, 19(20), pp.5058–5077.

Heinberg, R., 2011. *The End of Growth: Adapting to our new economic reality*, Gabriola Island: Clairview Books.

Hernandéz, Bernardo, et al, 2014. Theorectical and Methodological Aspects of Research on Place Attachment. In *Place Attachment*. London and New York: Routledge, pp. 125–137.

Herzog, T.R., Maguire, P. & Nebel, M.B., 2003. Assessing the restorative components of environments. *Journal of Environmental Psychology*, 23(2), pp.159–170.

Hickman, C., 2014. The garden as a laboratory: The role of domestic gardens as places of scientific exploration in the long 18th century. *Post-Medieval Archeology*, 48(1), pp.229–247.

Hofer, N., 2011. Charging the waters: The Grotte de Téthys as Versailers's initial metaphoric ground. *Architectural Research Quaterly*, 15(3), pp.249–261.

Holbrook, M.B. & Moore, W.L., 1981. Feature Interactions in Consumer Judgments of Verbal Versus Pictorial Presentations. *Journal of Consumer Research*, 8(June), pp.103–114.

Hollander, J.B. et al., 2009. Planning Shrinking Cities. *Progress in Planning*, 72(4), pp.223–232.

Hook, D. & Glaveanu, V.P., 2013. Image Analysis: An Interactive Approach to Compositional Elements. *Qualitative Research in Psychology*, 10(February 2014), pp.355–368.

Hunt, E.S. & Murray, J., 1999. *A history of business in medieval Europe, 1200-1550*, Cambridge: Cambridge University Press.

Islam, M.K. et al., 2006. Social capital and health: Does egalitarianism matter? A literature review. *International Journal for Equity in Health*, 5, p.3.

Jackson, J.B., 2003. The Past and Future Park. In S. Wrede & W. H. Adams, eds. *Denatured Visions: Landscape and Culture in the Twentieth Century*. New York: The Museum of Modern Art, New York, pp. 129–134.

Jacobs, J., 2005. *Dark Age Ahead*, New York: Vintage Books.

Jacobs, J., 1961a. *The Death and Life of Great American Cities*, New York: The Modern Library.

Jacobs, J., 1961b. The uses of neighbourhood parks. In *The death and life of great american cities*. New York: Vintage Books, pp. 89–111.

Jellicoe, G. & Jellicoe, S., 1975. *The Landscape of Man: Shaping the environment from prehistory to the present day* 3rd ed., London: Thames and Hudson.

Jervis, S.M., Ennis, J.M. & Drake, M.A., 2012. A Comparison of Adaptive Choice-Based Conjoint and Choice-Based Conjoint to Determine Key Choice Attributes of Sour Cream with Limited Sample Size. *Journal of Sensory Studies*, 27(6), pp.451–462.

Johnson, R.M. & Orme, B.K., 2007. *A New Approach to Adaptive CBC*. Available at: http://www.sawtoothsoftware.com/support/technical-papers/adaptive-cbc-papers/a-new-approach-to-adaptive-cbc-2007

Jones, A., Hillsdon, M. & Coombes, E., 2009. Greenspace access, use, and physical activity: Understanding the effects of area deprivation. *Preventive Medicine*, 49(6), pp.500–505.

Jordan, J., 2012. The Death of the American Shopping Mall. *The Atlantic Cities*, (18), p.2014.

Jorgensen, A., 2012. Introduction. In A. Jorgensen & R. Keenan, eds. *Urban Wildscapes*. New York: Routledge, pp. 1–13.

Jorgensen, A., Hitchmough, J. & Calvert, T., 2002. Woodland spaces and edges: Their impact on perception of safety and preference. *Landscape and Urban Planning*, 60(1), pp.135–150.

Jorgensen, A. & Tylecote, M., 2007. Ambivalent landscapes—wilderness in the urban interstices. *Landscape Research*, 32(4), pp.443–462.

Kabisch, N., Haase, D. & Haase, A., 2012. Urban Population Development in Europe, 1991-2008: The Examples of Poland and the UK. *International Journal of Urban and Regional Research*, 36(6), pp.1326–1348.

Kabisch, S., 2008. *Demographic change and its impact on housing*, Leipzig.

Kahneman, D., 2011. *Thinking Fast and Slow*, London: Penguin Books.

Kamierczak, A., 2013. The contribution of local parks to neighbourhood social ties. *Landscape and Urban Planning*, 109(1), pp.31–44.

Kaplan, S., 1995. The restorative benefits of nature: Towards an integrative framework. *Journal of Environmental Psychology*, 15, pp.169–182.

Karathodorou, N., Graham, D.J. & Noland, R.B., 2010. Estimating the effect of urban density on fuel demand. *Energy Economics*, 32(1), pp.86–92.

Kasanko, M. et al., 2006. Are European cities becoming dispersed? *Landscape and Urban Planning*, 77(1-2), pp.111–130.

Kawachi, I., 1999. Social Capital and Community Effects on Population and Individual Health. *Annals of the New York Academy of Sciences*, 896, pp.120–130.

Kawachi, I., Subramanian, S. & Kim, D., 2008. Social Capital and Health: A Decade of Progress and Beyond. In I. Kawachi, S. Subramanian, & D. Kim, eds. *Social Capital and Health*. New York: Springer, pp. 1181–8.

Kawachi, I., Takao, S. & Subramanian, S.V., 2013. *Global Perspectives on Social Capital and Health*, London: Springer.

Kennedy, H., Landor, M. & Todd, L., 2011. *Video Interaction Guidance: A Relationship-Based Intervention to Promote Attunement, Empathy and Wellbeing*, London: Jessica Kingsley Publishers.

Kim, D., Subramanian, S. V & Kawachi, I., 2008. Social capital and physical health: A systematic review of the literature. In I. Kawachi, S. Subramanian, & D. Kim, eds. *Social capital and health*. New York: Springer, pp. 139–190.

King, N. & Horrocks, C., 2010. An Introduction to Interview Data Analysis. In *Interviews in Qualitative Research*. London: SAGE Publications, Ltd., pp. 142–174.

Knudsen, B. et al., 2008. Density and Creativity in U.S. Regions. *Annals of the Association of American Geographers*, 98(April 2015), pp.461–478.

Kostof, S., 1991. *The City Shaped: Urban Patterns and Meanings Through History*, Hong Kong: C&C Offset Printing Company.

Kotler, P., Haider, D. & Rein, I., 1993. *Marketing Places: Attracting Investment, Industry, and Tourism to Cities, States, and Nations*. I. Kotler, Philip; Haider, Donald H.; Rein, ed., New York: The Free

Press.

Koyama, S. et al., 2014. Social Support Improves Mental Health among the Victims Relocated to Temporary Housing following the Great East Japan Earthquake and Tsunami, *Tohoku J. Exp. Med, 234*, pp.241–247.

Kroll, F. & Haase, D., 2010. Does demographic change affect land use patterns?A case study from Germany. *Land Use Policy*, 27(3), pp.726–737.

Kuhoutek, R. & Kamleithner, C., 2003. Temporary Uses, Deregulation and Urbanity. In F. Haydn & R. Temel, eds. *Temporary Uses, Deregulation and Urbanity*. Basel-Boston-Berlin: Birkhauser, pp. 25–37.

Kwon, S. & Adler, P.S., 2014. Social Capital: Maturation of a Field. *Academy of Management Review*, 39(4), pp.412–422.

Lagomarsino, L., 2008. Tipologie Urbane. In R. Luccardini, ed. *Genova e il suo urban sprawl*. Genova: Sagep Editori, pp. 5–19.

Lam, D., 2011. How the world survived the population bomb: lessons from 50 years of extraordinary demographic history. *Demography*, 48(4), pp.1231–62.

Lamas, J., 2000a. A Urbanística Formal Portuguesa. In *Morfologia Urbana e Desenho da Cidade*. Lisboa: Fundação Calouste Gulbenkian, pp. 281–292.

Lamas, J., 2000b. Desenho e Formas Urbanas no Século XIX. In *Morfologia Urbana e Desenho da Cidade*. Lisboa: Fundação Calouste Gulbenkian, pp. 203–226.

Lamb, H., 1965. The Early Medieval Warm Epoch and Its Sequels. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 1, pp.13–37.

van der Land, M. & Doff, W., 2010. Voice, exit and efficacy: Dealing with perceived neighbourhood decline without moving out. *Journal of Housing and the Built Environment*, 25(4), pp.429–445.

Langer, A., 2012. Pure Urban Nature: Nature-Park Sudgelande, Berlin. In Jorgensen, Anna; Keenan, R., eds. *Urban Wildscapes*. New York: Routledge, pp. 152–159.

Laurence, R. & Cleary, Esmonde; Sears, G., 2011. *The city in the Roman West, 250 BC-AD 250*, Cambridge: Cambridge University Press.

Layne, M., 2009. *Supporting Intergenerational Interaction: Affordance of Urban Public Space*. North Carolina State University.

Lederbogen, F. et al., 2011. City living and urban upbringing affect neural social stress processing in humans. *Nature*, 474(7352), pp.498–501.

Leonard, S.G., 1992. The message of Patrick Geddes 'the Green Pioneer'. In M. Macdonald, ed. *Patrick Geddes: Ecologist, Educator, Visual Thinker*. Edinburgh: Edinburgh University Press, pp. 73–77.

Leontidou, L., 1993. Postmodernism and the city: Mediterranean versions. (European Cities: Growth and Decline). *Urban Studies*, 30(6), pp.949–966.

Lin, B. et al., 2014. Opportunity or orientation? Who uses urban parks and why. *PloS one*, 9(1), p.e87422.

Lin, N. & Erickson, B.H., 2008. Introduction: Theory, Measurement, and the Research Enterprise on Social Capital. In *Social Capital, An International Research Program*. pp. 1–24.

Te Linde, J., 1982. Pictures and Words in Semantic Decisions. In J. C. Yuile, ed. *Imagery, Memory and Cognition*. New Jersey: Lawrence Erlbaum Associates, Inc. Publishers.

Lockman, K., 2013. Vacancy as a Laboratory: Toward an Urban Land Ethic. In *Shrinking Cities I Expanding Landscapes Conference*. University of Edinburgh, UK.

Loftin, C. & McDowall, D., 1982. The Police, Crime, and Economic Theory: An Assessment. *American*

Sociological Review, 47(3), p.393.

Looper, M.G., 2012. Political messages in the Medici Palace garden. *The Journal of Garden History*, 12(4), pp.255–268.

Lopez, R.S., 1984. *A Cidade Medieval*, Lisboa: Editorial Presença.

Loxton, H., 1996. The History of Gardens. In H. Loxton, ed. *History of Gardens: Its Evolution and Design*. London: Bounty Books.

Luce, Duncan; Tukey, J., 1964. Simultaneous Conjoint Measurement: A New Type of Fundamental Measurement. *Journal of Mathematical Psycology*, 27, pp.1–27.

Lund, T., 2012. Combining Qualitative and Quantitative Approaches: Some Arguments for Mixed Methods Research. *Scandinavian Journal of Educational Research*, 56(2), pp.37–41.

Lyons, C., 1997. Archives in Ruins: In M. Roth, C. Lyons, & C. Merewether, eds. *Irresistable Decay: Ruins Reclaimed*. Los Angeles: Getty Research Institute for the History of Arts and Humanities, pp. 80–85.

Macintyre, S. & Ellaway, A., 1993. Neighborhoods and Health: An Overview. In I. Kawachi & L. Berkman, eds. *Neighborhoods and Health*. Oxford: Oxford University Press, pp. 20–42.

Madanipour, A., 2013. Temporary Urbanism. In *Shrinking Cities I Expanding Landscapes Conference*. Edinburgh.

Madanipour, A., 2010. *Whose Public Space? International Case Studies in Urban Design and Development*, New York: Routledge.

Mahmoud, M. et al., 2009. A formal framework for scenario development in support of environmental decision-making. *Environmental Modelling & Software*, 24(7), pp.798–808.

Malthus, T., 1798. *An Essay on the principle of Population*, London: BiblioLife.

Manzo, Lynne C.: Devine-Wright, P., 2014. *Place Attachment*, London and New York: Routledge.

Manzo, L.C., 2006. Finding Common Ground: The Importance of Place Attachment to Community Participation and Planning. *Journal of Planning Literature*, 20(4), pp.335–350.

Marat-Mendes, T. et al., 2003. Mapping Lisbon Agriculture (1898-1911). Instituto Universitário de Lisboa (ISCTE-IUL), pp.1–19.

Marcotullio, P.J. & Solecki, W., 2013. What is a City? An Essential Definition for Sustainability. In C. G. Boone & M. Fragkias, eds. *Urbanization and Sustainability: Linking Urban Ecology, Environmental Justice and Global Environmental Change*. Dordrecht: Springer Netherlands, pp. 11–25.

Martinez-Fernandez, C.C. et al., 2012. Demographic Change and Local Development: shrinkage, regeneration and social dynamics.

Maslow, A. H., 1943. A theory of human motivation. *Psychological Review*, 50(4), pp.370–396.

McDougall, S. & Pfeifer, G., 2012. Personality differences in mental imagery and the effects on verbal memory. *British Journal of Psychology*, 103(4), pp.556–73.

McKee, A.J., 2014. Broken Windows Theory. *Encyclopædia Britannica*.

Miguel, S., 1939. A Igreja e o Sítio de Santo Estevão de Alfama. In Lisboa: Imprensa Líbano da Silva.

Mikadze, V., 2015. Ephemeral Urban Landscapes of Guerrilla Gardeners: A Phenomenological Approach. *Landscape Research*, 40(5), pp.519–529.

Mitchell, R., 2012. Is physical activity in natural environments better for mental health than physical activity in other environments? *Social Science & Medicine*, 91, pp.130–134.

Mitchell, R., Astell-Burt, T. & Richardson, E. a, 2011. A comparison of green space indicators for epidemiological research. *Journal of Epidemiology and Community Health*, 65(10), pp.853–8.

Mitchell, R. & Popham, F., 2008. Effect of exposure to natural environment on health inequalities: an observational population study. *Lancet*, 372(9650), pp.1655–1660.

Moore, R.C., 1986. The power of Nature: Orientations of girls and boys towards biotic and abiotic play settings on a reconstructed schoolyard. *Children's Environments Quarterly*, 3(3), pp.52–69.

Morais, R.J., 2010. *Refocusing Focus Groups: A practical Guide*, New York: Paramount Market Publishing, inc.

Morancho, A.B., 2003. A hedonic valuation of urban green areas. *Landscape and Urban Planning*, 66(1), pp.35–41.

Moutaud, I., 2010. City Regeneration: St. Louis, Large Scale Inner City Regeneration. *TOPOS*, pp.76–81.

Nassauer, J.I. & Raskin, J., 2014. Urban vacancy and land use legacies: A frontier for urban ecological research, design, and planning. *Landscape and Urban Planning*, 125, pp.245–253.

Nefs, M. et al., 2013. Shrinking cities as retirement cities? Opportunities for shrinking cities as green living environments for older individuals. *Environment and Planning A*, 45(6), pp.1455–1473.

Neill, W.J. V., 1995. Promoting the city: Image, reality and racism in Detroit. In W. J. V. Neill, D. S. Fitzsimons, & B. Murtagh, eds. *Reimaging the Pariah City: Urban Development in Belfast and Detroit*. Ashgate, p. 49.

Németh, J. & Langhorst, J., 2014. Rethinking urban transformation: Temporary uses for vacant land. *Cities*, 40, pp.143–150.

Ness, B., Anderberg, S. & Olsson, L., 2010. Structuring problems in sustainability science: The multi-level DPSIR framework. *Geoforum*, 41(3), pp.479–488.

Nevárez, J., 2007. Central Park, the Aesthetics of Order and the Appearance of Looseness. In K. Franck & Q. Stevens, eds. *Loose Space: Possibility and Diversity in Urban Life*. New York: Routledge, pp. 154–169.

Nilsson, K. et al., 2013. *Peri-Urban Futures: Scenarios and Models for Land Use Change in Europe*, Verlag Berlin Heidelberg: Springer.

Norman, P. et al., 2011. Rising premature mortality in the UK's persistently deprived areas: Only a Scottish phenomenon? *Social Science & Medicine*, 73(11), pp.1575–84.

Norman, P., Boyle, P. & Rees, P., 2005. Selective migration, health and deprivation: A longitudinal analysis. *Social Science & Medicine*, 60(12), pp.2755–71.

Ogunseitan, O. a., 2004. Topophilia and the Quality of Life. *Environmental Health Perspectives*, 113(2), pp.143–148.

Orme, B., 2010a. Interpreting the Results of Conjoint Analysis. In *Getting Started with Conjoint Analysis: Strategies for Product Design and Pricing Research.* Madison: Wis. Research Publishers LLC, pp. 77–88.

Orme, B., 2010b. Understanding the Value of Conjoint Analysis. In B. Orme, ed. *Getting Started with Conjoint Analysis: Strategies for Product Design and Pricing Research*. Madison: Wis. Research Publishers LLC, pp. 19–27.

Orme, B.K. & Johnson, R.M., 2008. *'Testing Adaptive CBC: Shorter Questionaires and BYO vs 'Most Likelies'*. Available at: http://www.sawtoothsoftware.com/support/technical-papers/adaptive-cbc-papers/testing-adaptive-cbc-shorter-questionnaires-and-byo-vs-most-likelies-2008.

Oswalt, P., 2008. Shrinking Cities. In P. Oswalt, ed. *Shrinking Cities*. Berlin: Project Office Philipp Oswalt, pp. 3–28.

Oswalt, P., 2006. *Shrinking Cities* In P. Oswalt, eds., Ostfildern-Ruit: Hatje Cantz.

Oswalt, P., Overmeyer, K. & Misselwitz, P., 2013. *Urban Catalyst*, Berlin: DOM Publishers.

Paivio, A., 1991. Imagery and Language. In *Images in Mind: The Evolution of a Theory*. New York: Harvester Wheatsheaf, pp. 107–133.

Palermo, L., Iaria, G. & Guariglia, C., 2008. Mental imagery skills and topographical orientation in humans: A correlation study. *Behavioural Brain Research*, 192(2), pp.248–53.

Pallagst, K.M., Martinez-Fernandez, C. & Wiechmann, T., 2013. Introduction. In K. M. Pallagst, T. Wiechmann, & C. Martinez-Fernandez, eds. *Shrinking Cities. International Perspectives and Policy Implications*. London and New York: Routledge, pp. 3–13.

Peters, K., Elands, B. & Buijs, A., 2010. Social interactions in urban parks: Stimulating social cohesion? *Urban Forestry & Urban Greening*, 9(2), pp.93–100.

Pizzoni, F., 1999. *The Garden: A history in landscape and art*, London: Aurum Press.

Popham, F. et al., 2011. Selective internal migration. Does it explain Glasgow's worsening mortality record? *Health & Place*, 17(6), pp.1212–7.

Postma, T.J.B.M. & Liebl, F., 2005. How to improve scenario analysis as a strategic management tool? *Technological Forecasting and Social Change*, 72(2), pp.161–173.

Rabito, F. a et al., 2007. The association between demolition activity and children's blood lead levels.rabito. *Environmental Research*, 103(3), pp.345–51.

Reckien, D. & Martinez-Fernandez, C., 2011. Why Do Cities Shrink? *European Planning Studies*, 19(8), pp.1375–1397.

Rink, D. et al., 2012. *Shrink Smart. Governance of shrinkage- Lessons learnt from analysis for urban planning and policy*, Leipzig.

Rink, D. & Haase, Annegret; Bernt, Matthias; Grossmannn, K., 2012. *Shrink Smart: The Governance of Shrinkage within a European Context*, Leipzig.

Robustillo, S.A. et al., 2013. *EU Employment and Social Situation Quarterly Review March 2013 - Special Supplement on Demographic Trends*,

Rodríguez, D. a et al., 2009. Land use, residential density, and walking. The multi-ethnic study of atherosclerosis. *American Journal of Preventive Medicine*, 37(5), pp.397–404.

Roe, J. et al., 2013. Green Space and Stress: Evidence from Cortisol Measures in Deprived Urban Communities. *International Journal of Environmental Research and Public Health*, 10, pp.4086–4103.

Roe, J. & Aspinall, P., 2011. The Emotional Affordances of Forest Settings: An Investigation in Boys with Extreme Behavioural Problems. *Landscape Research*, 36 (March 2015), pp.535–552.

Roe, J.J. et al., 2013. Engaging the Brain: The Impact of Natural versus Urban Scenes Using Novel EEG Methods in an Experimental Setting. *Environmental Sciences*, 1(2), pp.93–104.

Rosol, M., 2005. Community Gardens: A Potential for Stagnating and Shrinking Cities? Examples from Berlin. *Die Erde (special issue: Urban Ecology)*, (136), pp.165–178.

Russel, J.C., 1958. Late Ancient and Medieval Population. *Transactions of the American Philosophical Society*, 38(3), pp.1–152.

Ryan, B., 2013. Dealing with Declining Cities: Experience from the U.S. *Arctic Sustainability*, pp.1–14. Available at: http://www.gwu.edu/~ieresgwu/assets/docs/Ryan_ShrinkingCities.pdf [Accessed October 10, 2013].

Ryan, B., 2012a. Shrinkage or Renewal? The Fate of Older Cities, 1950-90. In *Design After Decline: How America Rebuilds Shrinking Cities*. Philadelphia: University of Pennsylvania Press, pp. 37–83.

Ryan, B., 2012b. 'The Burden Has Passed': Urban Design After Urban Renewal. In *Design After Decline: How America Rebuilds Shrinking Cities*. Philadelphia: University of Pennsylvania Press, pp. 1–36.

Ryan, B.D., 2012. Rightsizing Shrinking Cities: The Urban Design Dimension. *The City After Abandonment*, pp.268–288.

Ryan, B.D., 2008. The restructuring of Detroit: City block form change in a shrinking city, 1900–

2000. *Urban Design International*, 13(3), pp.156–168.

Ryan, M., 2004. Discrete choice experiments in health care. *BMJ*, 328(7436), pp.360–361.

Ryan, R., 2012. Exploring the relationship between community-based urban greening and neighborhood green space in Boston, Massachusetts (USA), p.136.

Rykwert, J., 2000. *The Seduction of Place: The History and Future of the City*, Oxford: Oxford University Press.

Rykwert, J., 2007. Topo-philia and -phobia. In X. Ruan & P. Hogben, eds. *Topophilia and Topophobia*. London and New York: Routledge, pp. 12–22.

Ryznar, R.M. & Wagner, T.W., 2001. Using Remotely Sensed Imagery to Detect Urban Change: Viewing Detroit from Space. *American Planning Association Journal*, 67(3), pp.327–336.

Saldana, J., 2009. An Introduction to Codes and Coding. In *The Coding Manual for Qualitative Reseachers*. Los Angeles: SAGE Publications, Ltd., pp. 1–31.

Salvati, L. et al., 2013. Latent Exurban Development: City Expansion along the Rural-to-Urban Gradient in Growing and Declining Regions of Southern Europe. *Urban Geography*, 34(3), pp.376–394.

Sambandam, R., Conjoint Analysis versus Self-Explicated Method: A Comparison. *TRC. Consumer Insights. Market Innovation.* Available at: http://www.trchome.com/white-paper-library/wpl-all-white-papers/209 [Accessed February 20, 2014].

Sampson, R.J., 1997. Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy. *Science*, 277(5328), pp.918–924.

Sattler, H. & Hensel-Borner, S., 2003. A Comparison of Conjoint Measurement with Self-Explicated Approaches. In A. Gustafsson, A. Herrmann, & F. Huber, eds. *Conjoint Measurement: Methods and Applications*. New York: Springer, p. pp 473–504.

Saxena, S., Carlson, D. & Billington, R., 2001. The WHO quality of life assessment instrument (WHOQOL-Bref): the importance of its items for cross-cultural research. *Quality of Life Research*, 10(8), pp.711–21.

Schatz, L.K., 2010. *What helps or hinders the adoption of 'good planning' principles in shrinking cities? A comparison of recent planning exercises in Sudbury, Ontario and Youngstown, Ohio*. Waterloo.

Schetke, S. & Haase, D., 2008. Multi-criteria assessment of socio-environmental aspects in shrinking cities. Experiences from Eastern Germany. *Environmental Impact Assessment Review*, 28(7), pp.483–503.

Schwarz, T., 2008. The Cleveland Lab: Experiments for a City in Transition. In S. Rugare & T. Schwarz, eds. *Cities Growing Smaller*. Cleveland: Cleveland, OH : Cleveland Urban Design Collaborative, College of Architecture and Environmental Design, Kent State University.

Seamon, D., 2014. Place Attachment and Phenomenology: The Synergistic Dynamism of Place. In L. Manzo & P. Devine-Wright, eds. *Place Attachment*. London and New York: Routledge, pp. 11–22.

Seawright, J. & Gerring, J., 2008. Case Selection Techniques in Case Study Research: A Menu of Qualitative and Quantitative Options. *Political Research Quarterly*, 61(2), pp.294–308.

Seeland, K., Dübendorfer, S. & Hansmann, R., 2009. Making friends in Zurich's urban forests and parks: The role of public green space for social inclusion of youths from different cultures. *Forest Policy and Economics*, 11(1), pp.10–17.

Semuels, A., 2015. A New Life for Dead Malls. *The Atlantic*.

Shors, T.J. et al., 2012. Use it or lose it: How neurogenesis keeps the brain fit for learning. *Behavioural Brain Research*, 227(2), pp.450–8.

Sieverts, T., 2003. *Cities Without Cities: An Interpretation of the Zwischenstadt* 1st edition, London: Spon

Press: Taylor and Francis Group.

Simmel, G., 1903. The Metropolis and Mental Life. In Frisby, David; Featherstone, Mike, eds. *Simmel on Culture*. London: SAGE Publications, Ltd., pp. 174–185.

Smith, D.W., 2013. Phenomenology. *Stanford Encyclopedia of Philosophy*. Available at: http://plato.stanford.edu/archives/win2013/entries/phenomenology/ [Accessed November 25, 2014].

Soga, M. et al., 2014. Land sharing vs. land sparing: Does the compact city reconcile urban development and biodiversity conservation? *Journal of Applied Ecology*, 51, pp.1378–1386.

Sophie, B. (Ecole N.S., 2011. From Shrinking Cities to Toshi no Shukusshõ: Identifying Patterns of Urban Shrinkage in the Osaka Metropolian Area. *Berkeley Planning Journal*, 23(1).

Southworth, M., 2005. Reinventing Main Street: From Mall to Townscape Mall. *Journal of Urban Design*, 10(2), pp.151–170.

Spirn, A.W., 1984. *Granite Garden: Urban Nature and Human Design*,

Stabiner, K., 2011. New Lives for 'Dead' Suburban Malls. *The New York Times*, 21 January, 2011.

Stake, R.E., 1995. The art of case study research. *The art of case study research*, p.175.

Stanley, B.W. et al., 2012. Urban Open Spaces in Historical Perspective: A Transdisciplinary Typology and Analysis. *Urban Geography*, 33(March 2015), pp.1089–1117.

Steinitz, C., et al, 2003. *Alternative Futures for Changing Landscapes: The Upper San Pedro River Basin in Arizona and Sonora*, Washington, D. C.: Island Press.

Stewart, H., 2015. Global recession in next two years is 'most likely' scenario, says economist. *The Guardian*, pp.21–23.

Stott, P. A., et al., 2000. Anthropogenic and natural causes of twentieth century temperature change. *Space Science Reviews*, 94, pp.337–344.

Stott, P. A., et al., 2001. Attribution of twentieth century temperature change to natural and anthropogenic causes. *Climate Dynamics*, 17(1), pp.1–21.

Striniste, N.A. & Moore, R.C., 1989. Early Childhood outdoors: A literature review related to the design of childcare environments. *Children's Environments Quarterly*, 6(4), pp.25–31.

Stuart, S.M., 2005. Lifting Spirits. In P. F. Bartlett, ed. *Urban Place: Reconnecting with the Natural World*. Massachusetts: MIT Press, pp. 61–88.

Symonds, J. & Gorard, S., 2010. The Death of Mixed Methods: Research Labels and their Casualties. *The British Educational Research Association*, pp.1–19.

Terschüren, C. et al., 2009. Health status of 'Ruhr-City' in 2025--predicted disease burden for the metropolitan Ruhr area in North Rhine-Westphalia. *European Journal of Public Health*, 19(5), pp.534–40.

Travlou, P., 2007. Mapping youth spaces in the public realm: identity, space and social exclusion. In C. Ward Thompson & P. Travlou, eds. *Open Space, People Space*. New York: Taylor and Francis, pp. 71–81.

Triguero-Mas, M. et al., 2015. Natural outdoor environments and mental and physical health: Relationships and mechanisms. *Environment International*, 77, pp.35–41.

Tuan, Y.-F., 1998. Earth/Nature and Culture. In *Escapism*. Baltimore & London: Hopkins, Johns, pp. 5–27.

Tuan, Y.-F., 2007. Time, Space, and Architecture: Some Philosophical Musings. In *Topophilia and Topophobia*. London and New York: Routledge.

Twine, K., Studies, G. & Montclair, U., 1992. The City in Decline: Rome in Late Antiquity. *Middle States Geographer*, 25, pp.134–138.

Tyrväinen, L. & Miettinen, A., 2000. Property Prices and Urban Forest Amenities. *Journal of Environmental Economics and Management*, 39(2), pp.205–223.

Ulrich, R.S. et al., 1991. Stress recovery during exposure to natural and urban environments. *Journal of Environmental Psychology*, 11(3), pp.201–230.

United Nations, 2011. *World Population Prospects: The 2010 Revision*, New York.

United Nations, 2014. *World Urbanization Prospects: The 2014 Revision*, New York.

Vale, L. & Campanella, T., 2005. The Cities Rise Again. In L. Vale & T. Campanella, eds. *The Resilient City: How Modern Cities Recover from Disaster*. Oxford and New York: Oxford University Press.

Vriens, M. et al., 1998. Verbal versus Realistic Pictorial Represemtations in Conjoint Analysis with Design Attributes. *Journal of Product Innovation Management*, 15, pp.455–467.

Vries, S., 2010. Nearby Nature and Human Health. In C. Ward Thompson, S. Bell, & P. Aspinall, eds. *Innovative Approaches to Researching Landscape and Health*. New York: Routledge.

Ward Thompson, C. et al., 2010. *Community green: Using local spaces to tackle inequality and improve health*, London.

Ward Thompson, C., 1998. Historic American Parks and Contemporary Needs. *Landscape Journal*, 17(1), pp.1–25.

Ward Thompson, C. et al., 2005. 'It Gets You Away From Everyday Life': Local Woodlands and Community Use—What Makes a Difference? *Landscape Research*, 30(1), pp.109–146.

Ward Thompson, C., 2011. Linking landscape and health: The recurring theme. *Landscape and Urban Planning*, 99(3-4), pp.187–195.

Ward Thompson, C. et al., 2012. More green space is linked to less stress in deprived communities: Evidence from salivary cortisol patterns. *Landscape and Urban Planning*, 105(3), pp.221–229.

Ward Thompson, C. & Aspinall, P., 2011. Natural Environments and their Impact on Activity, Health, and Quality of Life. *Applied Psychology: Health and Well-Being*, 3(3), pp.230–260.

World Bank, 2013. *Global Monitoring Report 2013: Rural-Urban Dynamics and the Millennium Development Goals*, Washington, D. C.

Weiland, D., 2011. Smaller is more beautiful. *Economist*, pp.10–11.

Wessman, S.C., 2007. Urban Shrinking in the Life Cycles of City Archetypes. In M. Langner & W. Endlicher, eds. *Shrinking Cities: Effects on Urban Ecology and Challenges for Urban Development*. Frankfurt: Peter Lang, pp. 145–158.

White, M.M., 2011. Sisters of the Soil: Urban Gardening as Resistance in Detroit. *Race/Ethnicity: Multidisciplinary Global Contexts*, 5(1), pp.13–28.

Wiechmann, T., 2007. What are the problems of shrinking cities? Lessons learned from an international comparison. In T. Wiechmann, ed. *The Future of Shrinking Cities - Problems, Patterns and Strategies of Urban Transformation in a Global Context*. Berkeley: Studies, Center for Global Metropolitan Development, Institute of Urban and Regional Network., and the Shrinking Cities International Research, pp. 5–16.

Wilkerson, I., 1987. Infant Mortality: Frightful Odds in Inner City. *New York Times*, pp.1–4.

Wilkinson, S., 1999. Focus Groups: A Feminist Method. *Psychology of Women Quarterly*, 23, pp.221–244.

Woldoff, R., 2002. The Effects of Local Stressors on Neighbourhood Attachment. *Social Forces*, 81(1), pp.87–116.

Yeloff, D. & Van Geel, B., 2007. Abandonment of farmland and vegetation succession following the Eurasian plague pandemic of AD 1347-52. *Journal of Biogeography*, 34(4), pp.575–582.

Yin, R.K., 2003. Introduction. In *Case Study Research: Design and Methods*. London: SAGE Publications,

Ltd., pp. 1–18.

Zakirova, B., 2010. Shrinkage at the Urban Fringe: Crisis or Opportunity? *Berkeley Planning Journal*, 22(23(1)), pp.58–82.

Appendices