

Demographic Decline, Population Ageing and Modern Financial Approaches to Urban Policy

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Abstract

The paper discusses the interaction between demographic ageing, population decline and various aspects of the local development challenges facing public authorities. In particular, the paper examines some of the financial issues arising from population ageing and decline and the ways in which new approaches to public finance are being used in support of EU regional and urban policy. In this context, it is argued that a comprehensive portfolio investment approach has the potential to improve significantly policy effectiveness.

1. Introduction

The scale of population ageing and population decline amongst many of Europe's and East Asia's cities (OECD 2015) and regions (OECD 2012) is now alarming. For countries such as Germany, Spain, Italy and South Korea, even a cursory read of the recent OECD (2016) territorial review of Japan offers sober warnings as to where many countries are quickly progressing and the complex impacts that population decline is likely to have on the economic development and financing of cities and regions. In the particular case of Europe, population decline is now a phenomenon affecting more than one third of Europe's cities (Dijkstra et al. 2013), and these demographics have major impacts on both aggregate productivity growth and the distribution of resources between age cohorts (Sharma 2016). These population decline trends pre-date the 2008 global financial crisis (Dijkstra et al. 2013), but have since been exacerbated by labour movements from less prosperous to more prosperous regions. In addition, baby boomers today represent some 45% of the EU labour force. Depending on the underlying demographic scenario, some 90-100 million individuals are going to retire over the next 20 years, with many countries suffering from high youth unemployment and weak public sector finances. The old-age dependency ratio is expected to double in the EU as a whole from four working-age individuals for every over 65 year-old to two, unless a massive increase in work force takes place thanks to a contribution from new immigrants. Thus, apart from factor movements, the total factor productivity of EU urban areas is likely to be affected by the transformation of local labour markets and their differential impacts on local cash-generation and fiscal possibilities, in a context where the digital economy will also alter the way scale and agglomeration economies operate in spatial systems.

These differential demographic trends also affect both the spatial equilibrium of the European city system and the adjustment costs associated with any movements towards new equilibrium patterns, in ways which are largely absent within the regional science literature or at least outside of the major regional science analytical narratives. In particular, both the current performance and the adjustment trajectories of cities are heavily inter-dependent with the city's

¹ The responsibility for the views and opinions contained in this paper rests solely with the authors and such views and opinions do not necessarily represent the position of the European Investment Bank or any other organisation.

financial basis. The demographic trends affect the financial vulnerability of the localities in very different ways leading to interregional and inter-urban financial imbalances - most notably those associated with managing cities facing population decline are especially challenging. Many aspects of urban policy can only operate successfully if the policy actions and interventions have sound financial fundamentals, yet in the case of local population decline the conditions under which urban policy interventions display the requisite financially sustainable characteristics are often not in place. Moreover, and more remarkably given the currently adverse population dynamics in many parts of the OECD (OECD 2012), is the fact that neither regional science nor urban and real estate economics offer any substantive guidance whatsoever as to how urban or regional policy might respond to such issues. There are no theoretical models of urban population-driven decline which are evident in either of these fields and which can be used to provide even partial guiding principles or diagnostics for the investment activities underpinning urban public policies. In many parts of Europe and East Asia policy-makers are therefore left to develop policy with little or no analytical bases. The types of policy interventions employed in areas facing population decline – such as the provision of green urban infrastructure, unconventional arrangements providing free space for entrepreneurs, and community development initiatives (OECD 2016) derive their logic almost entirely from outside of the fields of urban and real estate economics or regional science, instead taking their inspiration from the fields such as architecture and planning (Swaback 2007), environmental studies (Portney 2013) and political science. As such, given the immediacy and scale of these demographic trends, the vacuum currently left by urban economics and regional science is to say the least, a cause for concern.

There are different lines of research which examine some of the possible linkages between cities, population decline, finance, and urban policy. These various strands of literature are developing in different but related fields, and while they touch on different aspects of these issues, as yet we have no overarching or integrating framework allowing for the development of a more consistent approach to these matters. At the same time, there are also suggestions arising both from policy-related arguments and from observed experience that a new urban paradigm which embeds economic, environmental and social aspects within innovative financial mechanisms is now emerging on the basis of the experience of EU Cohesion Policy investments² as well as a variety of examples from around the world (Leanza and Carbonaro 2013). However, as just mentioned, the conceptual framework to address these challenges and the policy arena remains largely fragmented.

One of the key objectives of this paper is therefore to illustrate the likely evolving links between demographic changes and urban finance within this broader policy context so as to help begin to build a more comprehensive analytical framework for dealing with these matters. The paper is therefore meant as a ‘call to arms’ and as such represents one of the first attempts to begin to rectify this situation. The paper is neither a literature review, in the traditional sense, as there is as yet no coherent overarching conceptual framework which allows for such a review, and nor is this paper a wide-ranging evidence review of alternative strategies, in a classical sense, because there is as yet also no integrated framework for thinking about such evidence. Rather, the paper is explicitly intended as an attempt to overcome the current fragmentation in the

² http://www.eib.org/attachments/strategies/environdoc_en.pdf
<http://www.eib.org/projects/priorities/urban/index.htm>
http://www.eib.org/attachments/thematic/elena_en.pdf
<http://www.eib.org/infocentre/publications/all/shaping-sustainable-cities.htm>
<http://www.eib.org/products/jessica/index.htm>
<http://www.eib.europa.eu/products/jessica/index.htm>
http://ec.europa.eu/regional_policy/the_funds/instruments/jessica_network_en.cfm

literature by proposing an overarching framework which is based both on conceptual arguments as well as on insights derived from ‘hands-on’ policy-related experience involving hundreds of millions of Euros of urban policy investments. By sketching out some of the emerging links between cities, population decline, finance, and urban policy in the context of the on-going and rapidly-changing demographics in many parts of the world, we therefore hope to provide something of a ‘wake-up call’ for urban economics and regional science. Raising the awareness of the scientific community seems particularly timely within the EU, where the evidence of spatially diversified impacts of the Great Recession in the context of the single market and monetary union has made the lack of adequate fiscal and monetary shock absorbers even too obvious. The absence of a comprehensive vision of the above-mentioned emerging links is bound to hamper the design of investment strategies that may prove more effective in combating the effects of demographic imbalances, exacerbated by the Great Recession.

Recent contributions have highlighted how centrally managed measures are not effective in addressing a widening range of spatial disparities that hamper the performance of national economies. It is true that population dynamics is not the sole determinant of economic performance and spatial productivity differentials in OECD economies, and an effective approach will require the appropriate combination of centralised top-down and decentralised bottom-up instruments. The latter appear, however, essential and should capitalise on many ongoing ground-breaking experiences, including innovative finance, which offer ample and under-exploited opportunities for theoretical and empirical study to the scientific community.

In order to develop a framework for thinking about the relationships between demographic change and the challenges of urban policy, we begin in section 2 by discussing the complex relationships between demographic change - and in particular population decline and population ageing - and the concerns raised for the management of urban areas. Within regional science, systems of cities are typically discussed from the perspective of rank size rules and hierarchies, but except for insights from a few lines of research, rarely are they considered from the perspective of city assets and their implications on the financial viability of local settlement systems. However, as a result of the growing financialisation, global interconnectedness and convergence / divergence processes, such an asset-type of approach is essential for urban and regional policy-making, which aims to move away from purely grant-based funding structures (Leanza and Carbonaro 2013, 2016b). Adopting this asset-based vision in section 3 allows us to consider the likely financial implications of unbalanced urban development patterns across systems of cities, and in particular those associated with demographic decline and population ageing. Such a consideration also allows us to raise the key elements required in any place-based policy approach to urban interventions, particularly in the aftermath of the Great Recession. Section 4 then proceeds to map out some of the financial considerations underpinning strategic urban policy investments in a context of demographic decline and population ageing. The ability to link asset-based investment strategies and the practical design of investment portfolios tailored to local needs is presented as a way to achieve policy impact based on a financially viable bottom-up approach. Section 5 provides some brief conclusions on the challenges ahead.

2. Demographic Trends and Differences in the Performance of EU Cities and Regions

Regional science, urban economics and economic geography have all tended to discuss systems of cities from the perspective of central place theory, rank size and Zipf’s law types of rules or distributions (McCann 2013), or new economic geography frameworks (Fujita et al. 1999a,b). From this perspective, cities are understood as arising from the effects of competing territorial systems (Cheshire and Gordon 1995) over time and the spatial configuration of a system of

cities is shaped by this evolutionary process. In the case of the EU, the dynamics of the European spatial system has been accelerated by the long-term processes of globalisation and European integration and, more recently, by the impacts of the Great Recession (McCann 2015).

Three decades of pan-European international and interregional convergence have recently given way to increasing divergence (European Union 2014) on both levels (Dijkstra et al. 2015). Moreover, the European story of interregional convergence and divergence is not a simple story of big city versus small city or urban versus rural, but rather reflects a complex and varied picture (McCann 2015). Economic growth in the 1990s was dominated by larger cities and this process largely continued well into the 2000s in eastern Europe, whereas in western Europe economic growth in the New Millennium was dominated by smaller and medium-sized cities (Dijkstra et al. 2013). Since 2008 the EU interregional trends have been towards divergence, and differences in population growth and decline are one of the most important markers of these divergence processes (European Union 2014).

Demographic change impacts on a variety of components of the urban economy. Some of the key areas are urban labour markets, infrastructure planning and housing (Batz 2012), but general conclusions on the future potential growth patterns at the national macro level (European Union 2015) are not sufficient to make generalisations about the impact of demographic change on the local level, as population changes in local labour markets occur much faster and are more pronounced than at the country level. Locally, in many cases average population age and shrinking are more likely to be influenced by the migration rate in the short run than by natural population growth, whose impact tends to over longer periods. At the same time, urban areas and hence local urban and regional labour markets differ considerably in terms of size, economic structure and economic performance. In this respect, population decline is in most cases a symptom of the structural crisis of the local economy and, once in full swing, depopulation blocks the process of socio-economic recovery. Across the European system of cities these various demographic mechanisms interact in complex ways and these trends raise fundamental challenges to the management of cities and city-regions.

In general urban productivity growth is explained in textbooks (McCann 2015) as being correlated with population growth via the wage signals driving interregional or international migration (Dennett 2014; Faggian and McCann 2009a). However, the evidence suggests that in the European context, the links between growth and decline in urban economic performance on the one hand and population growth and decline on the other are complex. In terms of urban growth the positive trends have been rather more heavily weighted to differential fertility rates rather than migration (European Commission 2014), although the higher fertility rates in certain cities tend to be the result of the prior in-migration of young people. Conversely, urban population decline is also strongly associated with the out-migration of workers, and in particular younger workers, who tend to be relatively more geographically mobile (ESPON 2010). Indeed, of all age cohorts geographical mobility is most marked in the case of young university graduates (Faggian and McCann 2006, 2009b; Faggian et al. 2007; Fielding 2013), the group with the highest levels of human capital, and whose mobility also tends to be the most oriented towards cities (OECD 2011a). All areas face population ageing (OECD 2015) but in this context, interregional in-migration tends to be most associated with slower rates of population ageing and relatively buoyant local labour markets, whereas interregional out-migration tends to be associated with a combination of relatively rapid population ageing, weakening local labour markets and urban population decline. This latter combination is

extremely toxic on many levels, with the social, housing and health care needs of the ageing population growing relatively faster than the ability of the local labour market to fund and provide for such needs. In contrast, in growing cities the balance is shifting relatively in favour of the local labour markets. As such, population change is not simply a scale phenomenon, but a qualitative phenomenon with increasing population generally reflecting increasing economic buoyancy and resilience while population decline reflects increasing economic fragility and vulnerability.

As such, under current demographic and fertility trends and the retirement of the baby-boom generation, population growth in European cities will increasingly be the result of positive net in-migration and increased fertility rates while population decline will increasingly be the result of net out-migration and declining fertility. The fact that higher skills groups and younger age cohorts are the most mobile groups means that in general population decline will also be associated with a relative skills decline in comparison to growing regions. Job creation is therefore expected to be unevenly distributed across cities, driven by differences in total factor productivity, innovation performance and labour market flexibility. The resulting growing interregional inequalities across Europe plus the increasingly different demographic patterns across EU regions therefore mean that we are likely to face more frequent and more intense financial demand and supply imbalances both within and between EU cities and regions. On the one hand there will be increasing numbers of rapidly declining and fiscally stressed cities, over-supplied with under-maintained infrastructure co-existing with prosperous and growing cities attracting limited supplies of scarce investment capital and highly qualified mobile human capital. Yet, our knowledge in urban economics and regional science of the links between these issues is remarkably limited. Apart from a very few pieces of research (Dow 1982, 1987; Dow and Rodriguez-Fuentes 1997; Hess and Van Wincoop 2000; Ramos 2007; Crocco et al. 2010) the monetary aspects of regional development have been almost entirely ignored by the field, leaving us heavily under-prepared to consider these types of issues. Our lack of analytical knowledge is especially problematic in a context where EU central government budgets are severely constrained and also made less flexible by the need to meet their long-term pension obligations. In such situations, the results are likely to be increasing interregional and inter-urban financial imbalances in wealth, welfare and the quality of urban life, because demographic differences meter out different financial liabilities and cities facing population decline face especially stark long-run financial difficulties. Overall, the spatial reorganisation engendered by changing global convergence and divergence trends will have led to spatially diversified wealth effects, since the new urban spatial equilibrium is likely to destroy a substantial amount of wealth held by residents and investors in shrinking cities, while capital gains will concentrate in growing urban systems such as export hubs, particularly in countries where local demand expansion is tied down by macroeconomic constraints and limited capacity for fiscal transfers. In the majority of the EU countries, especially those of the so-called EU periphery, a major share of household wealth is held in urban assets, and typically in the form of owner-occupied housing, as these have traditionally protected the value of the investment against inflation and economic down-turns,³ and have also provided the most prevalent source of collateral including for the financing of entrepreneurial start-ups activities (Henley 2005; Reuschke and Maclennan 2014; Black et al. 1996). Spatially differentiated shocks to the EU urban system (Dijkstra et al. 2013, 2015) will therefore induce complex and varied local financial imbalances.

³ According to Bank of Italy estimates, for example, in Italy the housing component accounted for 56% of total household wealth in 2013, with even greater figures for the UK (*The Economist* 2015; Kumar et al. 2014).

The differential movements of different skills groups mean that increasingly the management of population decline as well as changes in residents' wealth and welfare will be determined by a city's ability to maintain its competitiveness. This itself will partly be determined by the cities' ability to retain and attract highly qualified human capital and innovative firms, but other factors and issues also play a role. Indeed, as well as engendering demographic differences in productivity-enhancing drivers as well as in the local asset base, there are also four other major issues which complicate the challenges faced by cities experiencing population decline in particular.

First, the impacts of demographic decline on housing is a key dimension and several trends will affect the specific balance of supply and demand in individual cities. The generalised decrease in average household size means that despite population decline in many EU countries, the demand for dwellings is still likely to remain largely unchanged in the coming decades at an aggregate level. However, the dynamics of individual housing markets will differ between cities, with some cities characterised by the widespread ageing-in-place of many senior citizens as the propensity to migrate declines with age; within these senior age groups any such movements which do occur tend to be strongly influenced by prior family connections. The impacts on housing prices are also likely to be spatially diversified. There are currently conflicting opinions about the possibility of a dramatic reduction in house prices due to the withdrawal of baby-boomers from the housing market, with some authors considering it unlikely and others highly probable (Takáts 2010, Graham and Sabater 2015, The Housing and Ageing Alliance 2013). The experiences from currently-shrinking cities, however, tend to reveal a primarily negative impact of the increase in vacancies on real estate prices, as well as adverse impacts on the image and attractiveness of the cities affected. These adverse population decline effects are especially compounded in the more fragile EU economies which were most severely hit by the 2008 crisis, whereby population ageing will also take place in a context of decreasing public expenditures and the consolidation of public accounts, along with often weak private sector job creation due to lower post-boom demand in banking, insurance, finance, legal services, real estate and construction.

Second, the under-utilisation of urban infrastructure is another key risk associated with population decline. Two main characteristics of urban technical infrastructure in the context of urban shrinking are their very high fixed costs, typically up to 80% of total costs, and an obligation to provide a minimum level of services to all consumers and users, which in the case of considerable population decline and lower system use will increase the per capita costs of operating and maintaining roads, power systems, sewers or drinking water networks. Fewer residents will have to pay more for these oversized or underused infrastructure facilities, while additional costs can arise from the need to adapt to different consumption patterns, or to demolish and downsize inefficient facilities. However, urban redevelopment in such a context is complicated by the fact that city population decline tends to involve the generation of somewhat spatially random patterns of vacancies and dereliction. Although urban blight and dereliction tend to be focused on certain weaker neighbourhoods, within these neighbourhoods vacancies and dereliction patterns tend to be random, due to different localised patterns of household ageing, real estate liabilities and different tenancy structures. Typically, urban development can only proceed via land assembly activities, and in such situations these also involve complex legal provisions, including compulsory purchase and compensation agreements.

Third, these differing interregional demographic trends issues also have potentially serious implications for public financial settlements in terms of the balance between central and local

funding sources and the share of finances transferred from central to local government, including the use of resources linked to pension payments. However, these fiscal federalism issues are beyond the scope of this particular paper.

Fourth, some aspects of the recent debate on secular stagnation and the increasingly difficult objective to generate durable high-quality employment are also particularly salient for the discussion on cities and local economies hit by population ageing and population decline. This is particularly the case for countries where the macro-economic scenario is one of slow growth, high unemployment and increasingly unequal income and wealth distribution. In commenting these dynamics Summers (2013) mentions the joint effect of ‘Baumol’s Law’ and the ‘Moynihan Corollary’⁴, in which over time many service-related and culture-related activities are increasingly only able to survive within the public sector. In principle the two sectors can survive and possibly thrive in the same urban economy, living side by side in cases where employment in the high-productivity, high-income tradable sector is sufficiently strong to generate jobs in the low productivity non-tradable service sectors. However, the point is that the same concentration-agglomeration factors that determine successful urban development in certain cases can also lead to sustained decline in others, some of which are critical for ensuring the long-term quality of life of local citizens.

Clearly there are a range of macroeconomic policies that can help to mitigate some of the effects of population decline and population ageing, including stimulating technical innovations for increasing the productivity of services to the fostering of medical innovations, education and lifestyle changes amongst older age groups. However, the specificity and diversity of these challenges at the local level and limitations in the scope of fiscal transfers mean that any top-down policies which are conceived and administered centrally must also be accompanied by local policies relying on a more effective place-based bottom-up approach, as discussed below.

3. The Role and Potential for Place-Based Urban Policies in the Context of Adverse Demographics

Modern regional and urban policies (McCann 2015; OECD 2009, 2011b, 2014a) aim to mobilise private sector and civil society stakeholders in public-private investment partnerships. More specifically, in many cases modern EU regional and urban policies (McCann 2015) are aimed at fostering sustainable urban development in cities hit by the wider ageing and adverse population trends in Europe. Therefore, in the context of urban and regional demographic decline and population ageing, the relationships between ageing, decline and urban structure should be examined taking into account the point of view of long-term investors, in order to identify a more effective role for place-based policies in facilitating local transition and transformation. This long-term investor perspective or ‘vision’ of urban systems can be articulated in two complementary views, which should be seen as ways of thinking about the urban and territorial dynamics in order to inform investment strategies.

⁴ Baumol’s Law is related to the tendency of certain goods to decrease considerably in price over time thanks to technologically induced productivity growth, while many other services including public services, are much less affected by technological innovation, with the effect (first noted by Baumol) that *ceteris paribus* the low growth sectors tend to take on a relatively higher share of resources. Moynihan’s Corollary is that the low productivity services have a tendency to end up in the public sector, such as publicly-subsidised performing arts or care for the elderly.

The first is the vision of the city as a macro-economy, which is very often incorporated into the conventional urban economics approach. Cities are represented through production functions and their growth performance metrics relate to population, income, GDP, productivity (and total factor productivity in particular), tradable vs. non-tradable services and so on (Henderson 1985). It is interesting to see how recent work has re-visited this classic approach, including the local multiplier concept (Moretti 2010, 2012), coming up with important results on the ability of high-skill migrants to induce very substantial non-tradable job growth in a local economy, although low wages in the non-tradable sectors remain a difficult issue.

The other complementary vision of the city looks at the urban system as a set of interlinked assets. Indeed, Mills (1972) conceived of a city as a financial portfolio in space and this vision provides us with a corporate strategy approach to thinking about urban areas, and in many ways can be aligned with the needs of city managers. This approach is more explicit in the professional and business literature (Porter and Kramer 2011), but even there the linkages between the city-as-portfolio concept and urban investment strategies is not fully articulated. In particular, this approach brings to centre stage the governance issues involved in designing and implementing appropriate responses to urban demographic challenges. These interlinked asset classes are the material and immaterial assets that constitute a city, including natural assets relating to the city's geographical location and features, its public and private built structures, its human capital and its enterprise assets. Although the notion of interlinked assets is intuitively obvious, specific analysis in the academic literature is limited, as well as practical, replicable applications in cities affected by demographic change and population decline. The design of a tailored strategy to inform investment decisions in these cities should be underpinned by city diagnostics examining for instance 'how the existing skill mix correlates with city demography and how ageing may affect the city skill endowment in the medium to long term, and whether migrants will be able to re-place the gap in younger population cohorts to preserve or improve the skill mix and maintain competitiveness and the required cash-generation capacity' (Leanza and Carbonaro 2016b). In an agglomeration framework the only synthetic, but partial manifestation of the performance of these interlinked assets, are the local real estate cash flow and capitalisation effects (Gordon and McCann 2000) and cities which are highly diversified in sectoral terms offer financial diversification possibilities for reducing risk. However, in a city facing both ageing and population decline the adverse impacts on each asset class can be transmitted into other asset classes largely irrespective of the local levels of sectoral diversification. A city increasingly populated by older people without successors is also increasingly characterised by citizens occupying residential assets they cannot afford to maintain and at the same time they may also become unable to pay the taxes necessary to support over-sized infrastructure (Batz 2012, Bonvalet et al. 2007). As already mentioned any inter-regional and inter-urban productivity differences may be further exacerbated by financial factors. A weaker total factor productivity will also bring about rising borrowing costs, as without guarantees or other types of support from higher governmental levels a local risk premium will be charged on new initiatives by financial institutions and other investors to compensate for higher location-related risks, including higher expected bankruptcy and recovery costs. In practice, in weak cities the gap between investment profitability and the risk-adjusted cost of funds for local investment may further increase adjustment costs, making adjustment by market mechanisms alone impossible. At the same time, higher governmental levels may have limited resources to transfer to the local level, particularly in Europe in the aftermath of the 2008 crisis, preventing recourse to many of the fiscal-stabiliser interregional transfer mechanisms commonly used in the past to mitigate these unbalances. Adverse local demographics characterised by population decline and population ageing will thus generate tensions with central governments regarding fiscal transfers and will therefore complicate the adjustment for cities confronted with a weaker local tax base and revenue generation capacity.

Local labour markets can expand in cash-generating tradable segments with a resilient productivity, but not all cities will be able to rely on such resilience. The implication is that without strong central government support only better urban asset management strategies, including cost-effective de-commitment of assets, can assist cities under stress to reduce the risk that these dynamics will lead to uncontrolled and damaging impacts on their economic performance and the welfare of their residents. In terms of strategic financial investing in support of urban policy it will be therefore critical for the urban policy manager interested in strategic investing to have an understanding of where the value creation opportunities lie within the city, and how civic economy institutions and the non-profit sector can help when public resources are unable to assist in the traditional way. This is just as true in declining cities as it is in growing cities, but it is also rather more difficult, challenging and urgent in the case of declining cities with a weak demographic structure (Leanza and Carbonaro 2016b).

Modern place-based approaches to development policy (Barca et al. 2012; McCann and Rodriguez-Pose 2011; OECD 2014a) as advocated by the reforms to the EU regional and urban policies (McCann 2015), emphasise the critical role that multi-stakeholder engagement set within the appropriate institutional context can play in fostering local development. In particular, finding ways to develop innovations linking related technologies, related activities, and related societal themes is critical for building resource concentration and these are all central elements of the smart specialisation agenda of the EU (McCann and Ortega-Argilés 2013a,b). Such innovations also call for an experimentalist governance approach (Sabel and Zeitlin 2010) and this is essential in cities facing population decline and population ageing which by definition cannot simply resort to traditional development strategies based on earlier periods of population growth. Instead alternative development approaches must be sought which are only consistent with the long-term demographic challenges facing these cities. Priority areas relating to the environmental upgrading of derelict land, the redesign of housing and transportation systems for an ageing population, the remodelling of the geography of public facility location patterns, the rethinking of access and mobility arrangements to civic centres, new uses for public spaces, and redesign of civic areas to enhance safety, are all obvious challenges for cities facing population decline and population ageing. In addition, providing new places and spaces for business activities and entrepreneurial start-ups is critical for bolstering the local economy. Designing policies which integrate technologies and activities aimed at addressing these different challenges provides declining cities with new opportunities for experimentation and innovation. Each of these challenges will involve innovation and the application of new building, energy, transportation and design technologies and development funding can provide the much-needed financial basis on which such innovations can occur. These are the themes underpinning what is increasingly referred to as multi-sector 'smart shrinking' strategies for urban areas. Such smart strategies should capture synergies in multi-sector investment designed to achieve the employment generation impact necessary to sustain the endogenous capacity to support aging and demographic decline through the application of innovative technologies which do not need economies of scale and urban size for effective impact (e.g. lower costs, higher total factor productivity) (Leanza and Carbonaro 2016a; Brynjolfsson and McAfee 2014).

4. A Portfolio Approach to Urban Investments

Within the fields of public economics and fiscal studies there is a vast literature on optimal resource allocations in the context of multi-level government and finance (Ferrara 2010; Oates 2011; Ahmad and Brosio 2015). However, as with urban and real estate economics, this literature is almost entirely silent on how to address urban and local financial problems in the context of population ageing in conjunction with population decline. This is because the underlying models are all based on assumptions of growth in population or productivity or prices or land areas. The lack of any analytical guidance means therefore that the risks of capital misallocation associated with the twin challenges of unbalanced urban growth and an underfunded public sector are exacerbated by ageing and adverse demographic change. Against this backdrop, both the city development manager and the long-term investor in sustainable development need to confront diverse risks and opportunities associated with the management of specific asset classes, different costs to maintain them, as well as different opportunities to generate financial and non-financial returns. While a city is not a corporation, as already explained, a corporate strategy approach to managing city assets in an integrated way, including the use of metrics relating to diverse assets, is essential in order to identify a 'sustainable' rate of return on investments.

Nowadays, the literature on local asset-based financial investment vehicles is extensive (Medda et al. 2015; Grace and Ludiman 2008), and two central features of these vehicles make them particularly relevant to address problems in cities facing ageing populations and demographic changes. First, these investment vehicles for urban policy interventions are meant to be financially self-sustainable over time, whereby financial sustainability is based on a diagnostic of the interlinked local assets and their capacity to generate cash-flow. Such flows, in principle, ought to be generated either entirely independently of funding from higher governmental levels or, alternatively, they should be able to significantly leverage and multiply the impacts of funding flows exogenous to the local economy. Second, the use of metrics based on the non-financial impacts on the long-term sustainability of the local economy constitutes an additional key dimension to assess the performance of investment choices. The need to combine these two features has motivated the development of an urban portfolio approach which aims to pool urban projects with a view to optimising investment selection, taking into account their financial and non-financial performance (Medda et al. 2015).

The development of a new portfolio approach for urban investments gives stakeholders and decision makers a practical tool for structuring and combining different typologies of projects into one overall urban investment package tailored to the opportunities and challenges faced by cities as they adapt to ageing and demographic changes (Medda et al. 2014). Two components are central to the new urban investment portfolio approach. First, financial and non-financial impacts of urban investments are elements of value creation. We argue here that every urban investment project should be evaluated through a combination of financial performance and assessment of non-financial impacts related to environment, energy, health, culture, and quality of life, to mention a few. From this perspective, private capital investors will consider possible urban investments through a wider lens of impacts which will determine

a reduction in the financial returns in relation to single investments, but will nevertheless satisfactorily forgo risk and give rise to stable and secure investment options. The urban investment portfolio thus allows us to integrate the non-financial valuations with conventional financial valuations in order to arrive at a combined impact indicator for any investment combination.

The second component in the portfolio approach is the interdependency of the projects, which represents a fundamental prerequisite in the evaluation of urban investments. For instance, new advances in technologies such as the internet of things (IoT) should convince us to adopt the interdependency paradigm, the connection of economics and environmental, cultural, and social aspects to technological advances within the interdependency between infrastructures. In recent years, social and urban infrastructure sectors, by being increasingly interconnected and interdependent with one another, have produced great revenue potential, for example, in health and social care for the elderly through co-housing initiatives or crowdsourcing platforms such as bottom-up financial credit systems. The values of infrastructure interdependency, as evinced in the urban supply chain, can be a source of additionality compared to the single infrastructure benefit baselines because interdependent infrastructures can be linked to opportunity of the investments across sectors, e.g., value creation and value capture of investment costs.

The cross-sector portfolio leverages on the integration of projects and the engagement of stakeholders thus reducing the financial risk exposure and stakeholder engagement are the fundamental drivers of the new urban financial agenda. The concept of value creation (Swaback 2007; Porter and Kramer 2011) is an essential element of a modern financial approach to urban policy, and includes the use of innovative financial mechanisms such as crowdsourcing for local community-led development initiatives⁵, peer-to-peer lending and impact investing tools, to mention just a few, as well as innovative approaches to urban re-design and redevelopment. While the systematic description and analysis of ongoing experience on the ground is not the focus of this paper, current innovative experiments already provide ample materials to develop a better-focused analytical framework and combine it with empirical evidence to identify how best to achieve financially sustainable and socially inclusive impacts via bottom-up strategies. These financial innovations are particularly evident at the micro-urban level, in which bottom-up actions allow the average citizen to participate and contribute financially to new urban initiatives. This may prove to be particularly relevant in tackling the problems of demographic changes and ageing populations, as micro-initiatives to

⁵ <http://www.luoghideali.it>

<http://www.rebuildchristchurch.co.nz/blog/2014/5/christchurch-urged-to-vote-for-art-with-their-wallets>

<https://www.voorjebuurt.nl/workshop-zuidoost-groningen-11-2/>

<http://projetodraft.com/cidade-para-pessoas>

<http://juntos.com.vc/pt/nossosonho>

<http://juntos.com.vc/pt/crecheesperanca>

<http://www.douwenkoren.nl/de-15-toonaangevende-crowdfunding-projecten-van-2012/>

<http://marialamslag.nl/crowdfunding-en-communities-de-weg-naar-financiele-publieksparticipatie-in-de-monumentenzorg/>

fund cost-effective measures to support increasingly frail populations are likely to be an essential ingredient of high-impact investment portfolios for these cities. In parallel to new bottom-up funding opportunities and initiatives, according to Hebb and Sharma (2014), urban finance is moving rapidly towards the financialization of cities, with pension funds, insurance companies and sovereign wealth funds becoming major private investors in this arena. Some scholars (Bongman 2011; O'Brien and Keith 2009; Clark and Wojcik 2007) argue that this increased financialization is likely to turn the attention of urban asset managers to financial performance so as to extract maximum financial value, and such action would take place largely at the expense of social benefits. However, the urban portfolio approach (Medda et al. 2014; Panayiotou and Medda 2014) does not select projects merely on the basis of their financial returns when constructing an urban investment portfolio. Economic, environmental and social impacts are equally considered in the investment selection so that the optimal portfolio is defined on the basis of joint maximisation of public and private objectives. Urban portfolio investment is grounded on differentiated yet integrated strategies rather than on piecemeal projects. A portfolio of diverse urban projects should not however be seen as a trade-off between 'bad' and 'good' projects. Instead, the urban portfolio approach allows both risky and less risky investments to co-exist, in effect giving the private sector good financial returns while also addressing the city's wider social needs. In particular, by combining different types of projects and fostering synergies between investments, a diversified portfolio with strong financial returns on some projects would compensate or cross-subsidise the weaker financial returns of other projects, which nevertheless are designed to achieve high non-financial impacts. Moreover, if new projects are added to the portfolio over time, the user can also verify whether or not they improve overall performance of the portfolio. The data on which these portfolios are assessed are derived from a combination of traditional project appraisal methods for assessing the likely financial returns plus the use of alternative non-market valuation techniques for assessing non-financial returns, the nature of which depends on the particular project. Indeed, there is now a vast literature for assessing non-market valuations or valuing non-marketable goods in areas relating to environment, energy, health, culture, wellbeing and quality of life (Carson 2012; Ruth 2015) and these valuations can be integrated with orthodox financial valuations in order to arrive at combined financial and non-financial returns of any combination of investments. Investment appraisal techniques incorporating the values flowing from the local provision of non-market goods and services, can be used to rank alternative urban project options. The level of sophistication offered by these techniques means that the valuation of alternative types of non-market goods can be undertaken in a manner which also allows us to calculate the optimal levels of subsidies or revolving loan finance required from public or philanthropic sources which most efficiently and effectively complements the funding from private sources of capital. The local long-term demographics need to be factored into the pricing of such models, and this is particularly important where budgets are decentralised or devolved and where finance is being raised in part by local bond sales. These principles are applicable either a unitary or a multi-level financial setting, with the calculation of the optimal local subsidies or revolving loan finance also depending on the overall budgetary relationships between central and local government. In all likelihood, the optimal level of subsidy or revolving loan finance will be positively related to the rates of population decline and ageing, positively related to the costs of converting and rehabilitating

real estate and infrastructure facilities, and inversely related to local land prices. The assessing of the required levels of fiscal support as well as the values of non-market goods and services is all crucial information which both private investors and public policy makers require when assessing the possible alternative urban policy options, alongside their relative returns and benefit-cost rankings.

It is noteworthy that the fostering of multi-sector synergies and effective multi-sector project implementation must also have good governance and institutional coordination; these can help deliver impacts and reduce investment risks and are not necessarily scale-related. Successful investment solutions in cities affected by demographic change and ageing populations are likely to consist of fine-tuned multi-sector investment in diverse assets, probably to a higher degree than in growing cities, where increasing demand can be relied on to justify investment in, say, traditional transport infrastructure. Private sector participation is facilitated if the investment portfolio offers a wide array of urban assets from the various sectors and objectives, including for instance, energy efficiency, age-related mobility services, smart transportation innovations, social enterprise development, and smart delivery of care services, in addition to conventional urban development and regeneration. As these diverse activities are built into integrated investment strategies designed and evaluated through tools like the portfolio platform and supported by good governance, the more attractive they will become to investors. Such investments, particularly if they seek to foster sustainable development, are likely to attract long-term investors including pension funds, commercial banks and regional development institutions; this is especially true where such institutions are under pressure to comply with their corporate social responsibilities (Kanter 2011). Indeed, finding ways to help overcome many of the wellbeing and quality of life challenges in cities facing demographic changes and ageing populations (OECD 2014b) are exactly the types of societal issues that institutions such as pension funds aim to address. As such, there can be a significant alignment between the long-term goals of the ‘ageing city’ and those same goals of financial institutions.

Yet in order to make successful urban portfolio investment decisions to attract investors and achieve impacts, it is also necessary to strike a balance between the interdependency of the projects needed to capture impact-enhancing synergies and to reach a minimum investment critical mass. Importantly, sufficient diversification should be present to contain overall investment risks, even in weaker ageing urban economies. Given that the ultimate portfolio goal is to achieve benefits and share risks and costs, strategic governance cooperation between the public and private sector is crucial to the development of a well-designed framework for investment that will yield an acceptable return to all participants. This is especially important because cash-flow priorities tend to differ between sectors. Local government and public institutions mostly seek to defray current expenditure costs and private sector partners primarily aim to remunerate their capital contributions; civic society partners will put their efforts into maximising the societal benefits of their investments. The alignment of incentives across different stakeholders is therefore just as critical as the synergy between investments

and although there are commonalities across sectors and stakeholders, some underlying differences in objectives still remain.

As such, a major challenge for promoting a portfolio approach to urban policy investments is to reconcile and align the different incentives. However, in order for such a cross-sector and integrated approach to urban investing to be successful, we must mention decision makers and how they choose to finance urban projects. Specifically, programme administrators and other professionals who shape our cities are often educated and trained according to theories and experience largely derived through their academic and professional specialisations, so their problem-solving approach is often shaped by a single disciplinary lens. These professionals are certainly aware of the impacts of other disciplines, and are likely to allow for such influences as they impact on the funding of urban projects. Nevertheless, the tendency for decision makers to retreat into their own disciplinary silos and be largely predisposed to a particular mind set is not always helpful in the implementation of solutions to the complex and locally specific challenges posed by aging cities. Indeed, the ability and willingness to work across disciplinary and professional boundaries is itself a key dimension of local institutional capacity and governance capabilities. Yet, these capabilities can also be stretched by other factors common in the development arena. In particular, urban projects are often susceptible to time delays and consequently high levels of political or government risk, particularly relating to issues such as land purchases, land-use planning and the provision of building permits. In order to ensure the attractiveness of urban investments to private investors, it is essential to maximise the benefits of effective management across urban assets including human capital, natural capital and fixed infrastructure capital and to incorporate these features into the portfolio approach. Therefore, as we have already seen, in the portfolio approach to urban policy investments both political and governmental risks are captured by factoring the quality of governance and stakeholder cooperation as part of the portfolio structuring exercise. This broader approach which explicitly incorporates non-financial returns and governance-related features into the portfolio framework offers cities much greater leeway to design development projects and programmes better tailored to their own needs and possibilities.

5. Conclusions

This paper has examined the links between population ageing and demographic decline, local economic development prospects, and the financial implications for urban policy. The approaches to urban policy in regions facing population decline borrow very little from either the urban and real estate economics literature or the regional science literature, because the models underpinning each of these fields are based on the assumption of growth. In contrast, population ageing and demographic decline will tend to increase the demand for health services, social security and the care for the disabled and the elderly, while reducing the viability of the local labour market and local government to provide these services. The result is that some regions and cities will increasingly face acute challenges in financing such services while for prosperous and relatively youthful cities these financial constraints will be much less significant. Population ageing and decline becomes really biting when the ratio of locally resident employed workers to locally resident non-workers and dependents starts to decline, because the capacity of local government to finance such services out of local taxes falls. Moreover, such a situation can occur long before absolute population decline becomes locally evident. In these situations local government becomes increasingly dependent on central government fiscal transfers unless other sources of funding can be generated. Furthermore, the

greater are the demographic differences in the experiences of cities and regions the greater will be the resulting financial asymmetries and the greater the need for interregional fiscal transfers precisely because elderly exhibit extremely low interregional mobility. Yet the impacts of the 2008 global financial crisis mean that in many European countries there is now a lower capacity or willingness to transfer central government resources to the local economies. These changing circumstances provide local government with clear incentives to look for local strategies that rely on a more proactive and effective management of local assets (in particular physical infrastructure and buildings) in order to help find financially sustainable solutions to these challenges and where necessary move the 'break-even point' for the city economy to fit a smaller and more elderly population. In this context investment strategies should take into account the increasing role played by digital innovation and the changing nature of agglomeration and scale economies, and the fact that potentially disruptive impacts may go hand in hand with opportunities for efficiency gains. As a result, there is already a greater demand for bottom-up place-based policies across EU regions and cities. A more proactive management of local assets should be planned in the context of investment strategies tailored to tackle the impacts of ageing and depopulation, combining effectively several strategic strands in ways specific to the local circumstances, normally including a mix of value capture, innovative technologies, cash-generation/cost reduction and smart shrinkage measures.

The portfolio investment approach outlined here is one example of newly-emerging approaches to urban development based on a combination of experience and analysis. This type of approach shows that it is possible to develop a practical decision-support system to assist stakeholders in assessing the performance of individual projects on both financial and non-financial dimensions, and also demonstrates how to combine projects into an integrated portfolio approach aligned with a robust investment strategy. The application of these techniques to project design, development, and appraisal can engender significant institutional learning and governance capacity-building. In addition, the experience of the JESSICA programme offers the possibility that these types of innovative financial tools aimed at enhancing city investments can also spur further financial innovations and help to facilitate local institutional connections and a renewed sense of civic ownership among citizens. The conceptual framework for urban strategic investment described in this paper is a good basis to further develop, refine and replicate decision support tools to assist cities in the EU and elsewhere to meet the challenges of ageing and depopulation in the hostile financial environment following the Great Recession.

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