



In November 2013 Leo van den Berg retired as professor of regional economics and urban development at Erasmus University Rotterdam. We, his colleagues, feel it is appropriate to pay tribute to Leo as a respected colleague, a stimulating professor and an energetic organizer and supervisor of research in urban dynamics, if only in the framework of Euricur, the European Institute for Comparative Urban Research. Therefore we took the initiative to publish this liber amicorum with contributions from people with whom Leo has collaborated during his academic career, like his PhD students, his Euricur relations from all over the world and his university department colleagues. This liber amicorum is meant to honour Leo's impressive and important contribution to the development of the theory and practice of regional and urban economics and management.

We were happy with the great positive response we came across when we asked "old" and "new" associates of Leo to contribute to this book. The reactions were that Leo van den Berg really deserves such a tribute for his great energy and enthusiasm to tackle new research topics and for the outstanding theoretical and applied research studies that have been carried out under his supervision by Euricur, the research institute which he has lead since its establishment 25 years ago.

The contributions, covering European and American examples, are distributed over three themes: Urban competitiveness (with contributions on American cities, Europe's second cities, knowledge locations and the Helsinki metropolitan region), economic perspectives of metropolitan regions (with contributions concerning strategies for the Ruhr region, business start-ups in Dutch urban regions, car industry and regional upgrading in Central and Eastern Europe, metropolitan growth perspectives in South Scandinavia and sustainable urban and regional development (with contributions dealing with climate adaption by innovation, sustainable urban solutions by involving companies).

Meine Pieter van Dijk, Jan van der Meer and Jan van der Borg  
Erasmus Universiteit Rotterdam, October 2013

The following authors have contributed to this book:  
Peter Karl Kresl, Michael Parkinson (in cooperation with Jay Karecha), Klaus R. Kunzmann, Christian Wichmann Matthiessen, Asta Manninen, Luis Carvallo, Meine Pieter van Dijk (in cooperation with Bas Koch and Matthijs Soeterbroek), Erwin van Tuijl, Lanfranco Senn (in cooperation with Dario Musolino), Jurian Edelenbos, Alexander H.J. Otgaar and Peter M.J. Pol, Jan van der Borg, Willem van Winden and Jan van der Meer

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From urban systems to sustainable competitive metropolitan regions  
Essays in honour of Leo van den Berg

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Meine Pieter van Dijk, Jan van der Meer  
and Jan van der Borg (eds.)





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Meine Pieter van Dijk, Jan van der Meer and  
Jan van der Borg editors

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## **Chapter 1: Introduction**

### **Jan van der Meer, Jan van der Borg and Meine Pieter van Dijk**

#### **Leo van den Berg's career perspective**

In November 2013 Leo van den Berg retired as a professor of regional economics and urban development at Erasmus University Rotterdam. We, as his colleagues, feel it is appropriate to pay tribute to Leo as a respected colleague, a stimulating professor and an energetic organizer of research in urban dynamics, and the director of Euricur, the European Institute for Comparative Urban Research. Therefore we have taken the initiative to publish a *liber amicorum* to commemorate this occasion with contributions from people with whom Leo has collaborated with during his academic career, like his PhD's, his Euricur relations from all over the world and his university colleagues. This *liber amicorum* is in honour of Leo's impressive and important contribution to the development of the theory and practice of regional and urban economics and management. In this introduction to the book we will highlight some features of Leo's career and present a brief overview of the contents of this book to which a number of reputed authors, both from the academic world and from city governments have contributed.

Jan van der Meer a retired associate professor who worked with Leo as a colleague for almost 40 years, will start with highlighting some features of Leo's career at the Erasmus University Rotterdam. Jan van der Borg, currently a professor at the University of Venice, was one of Leo's students and he was Leo's first PhD student. He describes Leo's Italian years while, finally Meine Pieter van Dijk, professor of urban management at the International Institute of Social Studies (ISS) and the Institute for Housing and urban development Studies (IHS) of Erasmus university and a former colleague in the Economic Faculty and initiator of this *liber amicorum* will give an introduction to the contents of this book.

We were happy with the great positive response we came across when we asked "old" and "new" relations of Leo to contribute to this publication. The reactions were that Leo van den Berg really deserves such a tribute for his great energy and enthusiasm to tackle new research topics and for the outstanding theoretical and applied research studies that have been carried out under his supervision at Euricur, the research institute which he has lead since its establishment 25 years ago.

Leo's academic career started in 1972, when he was appointed as assistant professor in regional economics, immediately after graduating in spatial economics at The Nederlandse Economische Hogeschool, which was in January 1973 transformed into the Erasmus University Rotterdam. A crucial moment in his career was the invitation in the mid 1970s by professor Leo Klaassen, in those days president of the NEI (Netherlands Economic Institute) and professor of regional economics at Erasmus University, to participate in an international study project coordinated by the

Vienna Centre<sup>1</sup>. This project, called “The Costs of Urban Growth” (CURB), involved research groups from 10 Western European and 5 Eastern European countries. Based on an extensive database, collected by the participating researchers, an urban life cycle theory was formulated<sup>2</sup>. Leo van den Berg had an important contribution to this project. In 1982 the results were published in the book “Urban Europe. A Study of Growth and Decline”<sup>3</sup> of which Leo van den Berg was one of the authors. This often cited book became a must for urban economists and geographers and brought Leo for quite some time to the top of most cited Dutch economists. We are pleased that from this first important period two researchers have contributed to this book: Christian Matthiessen (professor at the University of Copenhagen) and Lanfranco Senn (professor at Bocconi University of Milan) were participants in the CURB project.

The inspiring activities for the CURB project shaped the foundation for Leo’s dissertation<sup>4</sup>, which he defended in 1985, in which he elaborated on theoretical issues connected with the urban life cycle theory which gave this theory a valuable deepening and expansion. His PhD was supervised by his preceptor and friend Leo Klaassen. The important ideas developed in his dissertation have been cited worldwide and consumed by the students of the department of spatial economics at Erasmus University Rotterdam (and many others). Moreover, they offered a solid theoretical base for the vast number of studies that have been carried out by Leo and his team of researchers at the Erasmus University Rotterdam.

A second vital moment in Leo’s career was the invitation to participate in the organisation of a large city conference to be held in Rotterdam in 1986. The then mayor of Rotterdam, Dr. Abraham Peper (originally a university professor), invited representatives from eleven large European cities plus academics and industrialists to discuss their role on the topic: “The City: Engine Behind Economic Recovery”. At the time of the Rotterdam conference Europe was recovering from a deep economic crisis in the early 1980s and it appeared that the economic recovery started in the large cities. The Mayor of Barcelona in those days, Pasqual Maragall, embraced the Rotterdam initiative to bring city leaders together to discuss and promote their special role in the European economy. He launched the idea of establishing “Eurocities”<sup>5</sup> and invited city leaders to a next conference held in Barcelona in 1989. At the same occasion Euricur was formally established as a research network of cities and universities and a kind of “think tank”<sup>6</sup> of Eurocities.

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<sup>1</sup> European Centre for the Co-ordination of Research and Documentation in the Social Sciences, called “Vienna Centre”, part of UNESCO.

<sup>2</sup> The well known theory of the urban development stages respectively urbanisation, suburbanisation desurbanisation and reurbanisation.

<sup>3</sup> Berg, L. van den, Drewett R., Klaassen L. H., Rossi A., Vijverberg C.H.T. (1982), *Urban Europe. A Study of Growth and Decline*, Pergamon, Oxford

<sup>4</sup> L. van den Berg (1987), *Urban Systems in a Dynamic Society*, Avebury, UK (commercial edition).

<sup>5</sup> Eurocities is the network of major European cities. It has its seat in Brussels.

<sup>6</sup> For some years Leo van den Berg (representing Euricur) was vice-chair of the Working Group on Urban Policies within Eurocities with the City of Helsinki as Chair. .

Euricur is a joint creation of the cities of Rotterdam and Barcelona and the Erasmus University Rotterdam. The original ambition was to give the concept adopted for the Rotterdam conference a permanent character. Leo van den Berg became director of Euricur (originally together with Leo Klaassen who died in 1992 at the age of 72). The Mayor of Rotterdam (and his successors<sup>7</sup>) accepted to become Chairman of the Board. The first Euricur publication, with Leo as co-editor, was published in 1988 by Avebury<sup>8</sup>. Leo's research activities in the frame of Euricur have been greatly appreciated by a number of large city governments. Intensive research relations were set up with representatives of cities like Lyon, Birmingham, Eindhoven, Antwerp, Copenhagen, Manchester, Munich, Barcelona, Bilbao, Helsinki, Rotterdam (to mention a few cities who have or had intensive research relations with Euricur) and many others and with research groups from abroad. Since Euricur's first comparative study<sup>9</sup>, carried out in 1991, about 130 large cities from all over the world have participated in Euricur projects. Cities usually decide to take part in a comparative investigation because they appreciate the exchange of information and knowledge in an international context and the comparative analysis produced by Euricur's academic staff with Leo as inspiring supervisor and project manager. In this book a representative of the City of Helsinki, Asta Manninen, Director of City of Helsinki Urban Facts, confirms this appreciation in her contribution. Another contributor to the book is Michael Parkinson, professor at Liverpool John Moores University and director of the Liverpool based Institute of Urban Affairs. He participated in a number of Euricur studies, usually delivering the British chapter on Leo's request, and the other way around, Leo was invited to contribute to Michael Parkinson's studies for the British or European government. We are very pleased that Michael contributes to this *liber amicorum*<sup>10</sup>. Klaus Kunzmann, professor emeritus of the Technical University of Dortmund is another highly respected colleague and friend that we always have greatly appreciated for his creative work, often with an artistic twist. Klaus Kunzmann participated on Leo's request in two Euricur studies<sup>11</sup> in which he wrote the chapters about Germany. Moreover, Klaus Kunzman was an appreciated guest at Erasmus University. We are happy with his contribution to this *liber amicorum*.

A vital precondition adopted by Euricur is that the results of the studies should always be widely disseminated through academic publications, conferences, presentations, et cetera. By doing this Euricur, and as a

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<sup>7</sup> Next to Bram Peper (from 1988-1999) the successive mayors of Rotterdam Ivo Opstelten (from 1999 till 2008) and Ahmed Aboutaleb (since 2009) accepted the chairmanship of the Euricur Board.

<sup>8</sup> Leo H. Klaassen, Leo van den Berg, Jan van der Meer (eds.)(1988), *The City: Engine Behind Economic Recovery*, Avebury, UK

<sup>9</sup> L. van den Berg and J. van der Meer, 1991, *Regional Airports and Urban Development*, Euricur Report

<sup>10</sup> In cooperation with Jay Karecha from the Institute of Urban Affairs

<sup>11</sup> L. van den Berg, E. Braun and J. van der Meer (eds.) (1998) *National urban policies in the EU*, Ashgate, UK and L. van den Berg, E. Braun and J. van der Meer (eds.)(2004) *National Policy Responses to Urban Challenges in Europe*, Ashgate, UK .

consequence the Erasmus University Rotterdam, gained a great reputation in the field of urban economic development and management in cities and universities all over the world. Since 1988, eighteen books have been written in the Euricur Series, published by Ashgate<sup>12</sup>, UK, and the nineteenth is underway<sup>13</sup>. Leo van den Berg, who is inextricably connected with Euricur, was co-author or co-editor of all of them.

Connected to the establishment of Euricur, Leo was appointed professor of regional economics and urban development at Erasmus University Rotterdam in 1989. In this capacity he became scientific director of the department of Regional, Port and Transport Economics within the Erasmus School of Economics of the Erasmus University Rotterdam. During his professorship he started among others the post graduate MSc Management of the European Metropolitan Region in cooperation with the University of Antwerp, the Universidad Autònoma Barcelona, the University of Copenhagen and the Ca'Foscari University of Venice. He was also involved in the establishment of the Urban Management Centre, a cooperation of IHS (Institute for Housing and Urban Development Studies) and Erasmus University Rotterdam, created to deliver international master courses targeted at cities in developing countries, and in the post experience MSc City Developer, a cooperation of Technical University of Delft, Erasmus University Rotterdam and City Development Rotterdam.

In September 2011 he was appointed professor of urban and regional economics at the Ca'Foscari University of Venice. The Italian Ministry of Education and Universities decided to establish a number of special chairs at the most prestigious Italian universities with the explicit goal to internationalize the involved universities allowing them to hire distinguished foreign professors for three years. The classes Leo van den Berg has been giving in Treviso, a city that he has learned to love, have been very much appreciated by the Italian students for their 'usefulness' and the strong link between theory, practical implementations of this theory and explicit references to the socio-economic reality.

Until November 2013 he supervised (or co-supervised) around fifteen PhD's. They all worked on dissertations that tackled very innovative issues related to urban and regional economics. For example, his first PhD student, Jan van der Borg, who finished in 1991, analyzed the case of Venice in order to better understand the complex relationships between tourism and the urban economy. In 1986, Leo van den Berg's proposal for Jan van der Borg's AIO position<sup>14</sup> was received with much scepticism by the board of the Tinbergen Institute. Obviously, Leo van den Berg insisted in pursuing this line of research and in 1995 Euricur produced one of the first studies with a regional economic angle on the phenomenon of urban tourism. Today, tourism is one of the principal streams in conferences of the Regional Science Association (RSA). Similar stories can be told for many of the successive PhD projects.

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<sup>12</sup> And by Ashgate's predecessor Avebury.

<sup>13</sup> L. van den Berg, J. van der Meer, L. Carvalho (eds.)(2014), *Cities as Engines of Sustainable Competitiveness*. European Urban Policy in Practice, Ashgate, UK.

<sup>14</sup> PhD post.

Next to the already mentioned Euricur Series, Leo has contributed to many other books, articles in academic journals, and of course Euricur papers and reports. Moreover, he is a much sought keynote speaker on numerous international conferences, member of commissions, invited advisor, et cetera. He is alumnus of the Economic Development Board Rotterdam, an advisory council to the Rotterdam city government. He was invited as advisor for the Barcelona Strategic Plan, for the Copenhagen Agenda for Sustainable Cities (2009) and recently he gave a presentation for the internal EU workshop “Role of Cohesion Policy Instruments in the Recovery and Growth of the European Economy” (September 2010). He was invited to participate in the prestigious Global Urban Competitiveness Project managed by professor Peter Kresl from Bucknell University, USA. We are very glad that Peter Kresl has delivered a chapter in this book to honor Leo van den Berg for his contributions made to scholarship and policy studies.

### **The structure and content of the book**

The editors have chosen *From urban systems to sustainable and competitive Metropolitan regions* as the title for this book because it describes the intellectual development of Leo van den Berg in one sentence. After this introduction you find the first part on urban competitiveness. Then we have some chapters on regional metropolitan cities and finally we have a number of contributions on sustainable urban and regional development. As mentioned, Leo's PhD was on urban systems, but his later work concerned competitive city regions. However, he also always emphasized that a city should be put in a regional context and that the two could not be separated. We still do this for analytical reasons, after this introduction we start with chapters relating to the competitiveness of cities and then pay attention to regional metropolitan cities.

Peter Kresl is the expert on urban competitiveness and he takes up the history of the competitiveness of cities concept. Subsequently he describes its development, while focusing on American cities. Michael Parkinson and Jay Karecha's chapter 3 on European cities in an age of austerity develops this idea further. He notices the important contribution of secondary cities (like Rotterdam) and asks the question: why not invest beyond the capitals? It turns out that knowledge and innovation play an important role and Luis Carvallo, a former PhD student of Leo van den Berg, looks at urban dynamics and knowledge locations. He wants to understand the development of such locations and the role of policies. Finally, Asta Manninen makes very clear what the role of comparative urban research is in promoting sustainable growth, competitiveness, and social cohesion. She refers to the work of Euricur and shows the impact it had in Helsinki.

The second part is on metropolitan regions. Klaus R. Kunzmann starts with his song about the history and future of the Ruhrgebiet. This is a good example of a metropolitan region. Klaus Kunzmann presents his ideas about this industrial zone in Germany that we all know as the centre of coal and steel industries. However, after the Second World War it was transformed into a region with service industries. What would make the region competitive in a period that many industrial products come from

China and the demand for services may be decreasing? Again knowledge and innovation are important. Meine Pieter van Dijk, Bas Koch and Matthijs Soeterbroek study the issue. They ask the question: is the number of business start-ups a function of agglomeration economies and the local knowledge economy? They provide evidence from The Netherlands where agglomeration and the presence of the knowledge economy play an important role. They test a number of hypotheses about the importance of city size, the role of the knowledge economy and of agglomeration. Erwin van Tuijl, Leo's last PhD student at the Erasmus University Rotterdam, takes a sectoral approach to regional development and looks at car makers and regional upgrading in Central and Eastern Europe. He compares a French firm (Renault) and the South Korean firm Hyundai-Kia, to show the differences and major similarities in their approach. We finish again with a chapter showing the importance of research by Euricur. This time Leo's Danish colleague, Christian W. Matthiesen, shows that the South Scandinavian Metropolitan Growth taking place after constructing a bridge between Denmark and Sweden fits in the Euricur philosophy of creating competitive city regions. Finally Dario Musolino and Lanfranco Senn deal with the territorial attractiveness of Italy. Which regions, places and cities are in the mental maps of Italian entrepreneurs?

The last part formulates some of the challenges for the future. How do we achieve sustainable urban and regional development? Jurian Edelenbos, Alexander H.J. Otgaar and Peter M.J. Pol, the latter were Leo's PhD students, argue by adaptation to climate change and by more innovation. They call it a Combined Urban Economics and Urban Governance Perspective on Climate Adaptation. Willem van Winden, also one of Leo's former PhD students, looks at delivering sustainable urban solutions: How companies become involved in urban management. Companies are an important stakeholder in urban management, but their role often neglected in the search for sustainable urban and regional development. Finally Jan van den Borg discusses the role of sustainable tourism development, taking the case of Venice once more.

It has always been intellectually challenging to work with Leo van den Berg. This book continues some of the broad range of topics and lively discussions that we often had. Besides providing intellectual leadership Leo van den Berg managed to create the perfect conditions for his colleagues to work. Mixing humor with football and Christmas lunches with joint trips abroad we always felt at ease not hindered by the upcoming University bureaucracy, but enjoying challenging the body and the mind.



# Part 1 Urban competitiveness

## Chapter 2: Cities in competition: What do we see looking forward?

**Peter Karl Kresl**

During the quarter century since the founding of Euricur the study of cities and urban regions has moved steadily to the center of the study of public policy. The modern study of cities, of course, goes back many decades, but the city was not understood to be an entity that could act much on its own. Cities were subsumed under superior levels of government - the nation was primary but also sub-national governments such as states, provinces and regions. The exception being city-states such as Venice during its best years. They were limited in their capability to act internationally, to have independent action on the national economy, and to shape the course of their own economic future. Now mayors lead trade delegations, cities do what they can to attract skilled migrants and capital from abroad, it is recognized that the competitiveness of a nation is a function of the competitiveness of its major urban areas, and cities engage in strategic economic planning as well as seeking major sporting, trade and cultural events. So cities are now at the center, with considerable degrees of freedom of action.

The earlier work on cities during the 20<sup>th</sup> century focused in part on sociology. In a period of rapid migration from rural areas to burgeoning cities in Europe and North America, sociologists were fascinated with the ways in which city and rural life differed. Lewis Mumford, Georg Simmel, Louis Wirth, Herbert Gans and Walter Benjamin followed in the steps of Friedrich Engels. In the United States, major studies were done on what was referred to as 'city life', especially by scholars of the 'Chicago School', soon to be followed the 'LA School'. Frederick Law Olmsted, Le Corbusier, Ebenezer Howard and Frank Lloyd Wright examined the spatial possibilities for urban communities. Finally, Jane Jacobs alerted us to the growing potential for action on the part of cities and to their increasing economic importance.

Euricur was founded in the midst of a period of rapid change in the place of the city in the global economy. Trade liberalization, both regional and global, was increasing, firms were investing in facilities throughout the world, deindustrialization was taking place in many traditional manufacturing regions, technological change was transforming the way in which individuals, firms, and governments related to each other and to data and information, rapid migration was taking place both within and between national economies, demographic changes were beginning to age the population in many countries, and central and sub-national governments were beginning to experience fiscal difficulties which would soon become

paralyzing. At this moment in time, 1989, the EuroCities Movement declared provocatively in a manifesto: “Now is the time for the cities!”<sup>15</sup>

While much change had taken place during the 20th century, in comparison with events at the beginning of the 21st century, the pace of change with regard to the situation of cities seemed almost glacial in tempo. In the new situation space and time, and structure came to have increased importance. Economic geographers focused on writers of the past who gave a basis for this analysis – the central place theory of Walter Christaller and August Lösch set the city in economic space. The industrial districts of Alfred Marshall morphed into the fascination with clusters. Agglomeration and networks received increased scrutiny. Cities became interesting actors on the stage of the global economy in ways that they had not before. The work of Euricur contributed significantly to this new study of the city

In this chapter I will review the trajectory of the study and reality of cities and their competitiveness since Euricur was founded, I will suggest some changes in the economy and its structures one can anticipate, I will then examine how this will affect the ability of city leaders to enhance the competitiveness of their city, and I will offer my own speculations about the future as we go through the chapter.

## **2.1 What has been the trajectory of cities and competitiveness during the past 25 years?**

A call to arms, of a sort, was raised by the Eurocities movement in its manifesto of 1989. Shortly thereafter, in 1994, the OECD held a conference in Melbourne, Australia, on the theme of “Cities in the New Global Economy”<sup>16</sup>. Eighty presenters of research projects covered virtually all of the topics that have urban specialists in the ensuing years. Then five years later *Urban Studies* offered an issue devoted to “Competitive Cities”<sup>17</sup>. These and other similar developments put the competitiveness of cities and urban regions squarely at the front of the policy study agenda. Traditional issues such as demography, spatial aspects of economic activity, strategic economic planning, and other key aspects of the existing study of cities took on a new importance and were studied in the new context of city activism in the globalizing economy.

In this context of dramatic and even exponential change, cities have changed in their function, their relationships with other competing and collaborating cities, and their place in spatial and functional structures; they are confronted with a steady stream of challenges, threats to existing activities and opportunities for new activities. Fundamental to this has been the transformation in the nature and function of the economic base of the city. During the nineteenth century in Europe and North America agriculture gave way to manufacturing, and then manufacturing was supplanted by

<sup>15</sup> Eurocities, “Eurocities Manifesto”. (1989) *Barcelona’s Conference*, Barcelona: Eurocities, p. 74.

<sup>16</sup> *Cities and the New Global Economy*, Canberra: Organization for Economic Cooperation and Development and the Commonwealth of Australia, 1995,

<sup>17</sup> “Review Issue: Competitive Cities”, *Urban Studies*, Vol. 36, Nos. 5/6, May 1999.

services. In each of these transformations while output has been maintained, the demand for labor has been significantly reduced since the motive force behind transformation has been technological advance and increases in productivity of labor. In 2013, throughout the industrialized world economies are experiencing either soaring unemployment, as in the European Union, or a jobless recovery as is the case with the United States. While not exclusively so, this situation is largely an urban region problem.

While there has been a substantial transfer of the production of agricultural products to developing countries, due to effective policies in Europe, North America and Japan output in these developed countries has not been reduced. However, we have seen that as manufacturing gave way to services in the industrialized world, output of industrial goods in many developed countries and, certainly in many of the older manufacturing urban centers, was substantially reduced and transferred to Asia and to other developing economies. This de-industrialization has been disastrous for many well-established manufacturing cities and regions, such as the American Industrial Heartland, and several industrial regions of Western Europe. Some such as Chicago and Pittsburgh have re-created their economies, whether through the path-dependent approach of Chicago or the re-specialization of Pittsburgh, while others, such as Buffalo and Detroit, are still struggling decades after the collapse. Clearly there is much city leaders everywhere can learn from these experiences.

The rise of the service sector, first as a complement to and later as a substitute for, manufacturing, has been widely commented on by many observers. The Global Cities and World Cities literatures<sup>18</sup> have alerted us to the implications of this structural transformation for the larger cities in the global hierarchy. Service industries brought many highly skilled and educated workers to the relatively few cities that could serve as global command centers. Robert Reich famously labeled them 'symbolic analysts', workers who manipulated symbols and intangibles rather than the physical parts that were central to manufacturing<sup>19</sup>. This core of decision-makers was accompanied by an army of lower-level facilitators and back-office workers. Existence of these lower level jobs drew streams of young workers from the rural areas and small towns into the increasingly dominant and attractive large cities.

The characteristics of the service sector workers of the new post-'post-Fordist' economy made it clear that this was radically different from the manufacturing economy that it was, to some extent, replacing. There soon ensued a series of efforts to capture and characterize this new economy and its work force. Roberto Camagni articulated the notion of the innovative milieu, based on district economies, proximity economies and synergy elements. Its characteristics were division of labor, learning-by-doing and by-using, externalities resulting from a common industrial culture and by

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<sup>18</sup> Saskia Sassen, *The Global City*, Princeton: Princeton University Press, 1991; and Peter J. Taylor, *World City Network*, New York: Routledge, 2004.

<sup>19</sup> Robert Reich, *The Work of Nations*, New York: Vintage, 1992.

dense input-output exchange, entrepreneurship and cross-fertilization.<sup>20</sup> Richard Florida announced the widely-discussed “rise of the creative class”<sup>21</sup>. Gunnar Törnqvist shows how geographic mobility and patterns of contact have had positive impacts on creative people, such as successful scientists and Nobel Prize winners, and grounds their success in the geographical milieu found in large cities and in urban areas<sup>22</sup>. Cities were then evaluated in accordance with their capacity to serve as ‘learning regions’<sup>23</sup>. The ‘creative’ economy was celebrated by Landry, who has argued: “Cities have one crucial resource – their people. Human cleverness, desires, motivations, imagination and creativity are replacing location, natural resources and market access as urban resources”<sup>24</sup>. Krätke conflates this into a “capitalist imperative of creativity and innovation”<sup>25</sup>. Most recently, Scott has offered us the notion of the ‘cognitive-cultural’ economy, which he describes as; “a combination of digital technologies and complex cognitive and cultural work tasks calling for wide discretionary decision-making on the part of individual employees”. The cognitive-cultural city is recognized by “its central dependence on high levels of scientific and technical labor, its wide array of knowledge-intensive and affect-intensive product procession, and its heavy focus on turning out aestheticized consumer goods and services”<sup>26</sup>. All of these representations can be seen as ‘variations on a theme’, a movement away not only from manual labor and manufacturing but also from a generic financial, travel and personal services economy to one that places a premium on both a high level of technological skills and an urban environment that will nurture the formation of these skills and will be a location that is maximally congenial to their employment.

Underlining all of this is Manuel Castells’ notion of the shift from cities existing as a “space of places” to one of a “space of flows”<sup>27</sup>. In the former, locations exist in networks that connect people and activities networks in the confines of locality; the space of flows consists of city regions that are spatially distant but are linked, through electronic connections or networks to different geographic hinterlands. If this new structure is going to work properly, there must be a transformation of urban policy and of urban politics, but he sees a major challenge in the introduction of effective governance of cities in a situation of increasing bureaucratization and alienation of institutions vis-à-vis their citizens. This emphasis on fluidity

<sup>20</sup> Roberto P. Camagni, “The Concept of *Innovative Milieu* and its Relevance for Public Policies in European Lagging Regions”, *Papers in Regional Science*, Vol. 74, No. 4, pp. 318-319.

<sup>21</sup> Richard Florida, *The Rise of the Creative Class*, New York: Basic Books, 2002.

<sup>22</sup> Gunnar Törnqvist, *The Geography of Creativity*, Cheltenham: Edward Elgar, 2011.

<sup>23</sup> See the contributions in: Frans Boekema, editor, *Knowledge, innovation and enormous growth: the theory and practice of learning regions*, Cheltenham: Edward Elgar, 2000.

<sup>24</sup> Charles Landry, *The Creative City*, London: Earthscan Publications, 2000, p. xiii.

<sup>25</sup> Stefan Krätke, *The Creative Capital of Cities*, Chichester: Wiley-Blackwell, 2011, ch.

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<sup>26</sup> Allen J. Scott, *A World in Emergence*, Cheltenham: Edward Elgar, 2012, p.41.

<sup>27</sup> Manuel Castells, “Local and Global: Cities in the Network Society”, *Tijdschrift voor Economische en Sociale Geographie*, Vol. 93, No. 5, pp. 548-558.

leads us to an understanding that this economy has moved away from permanence to mutability. The future need not be dominated by the present, and the possibility of significant and beneficial change is entirely possible and indeed likely.

This mutability and fluidity make measurement of the relative competitiveness of a city or of a set of cities problematic. Urban competitiveness does vary significantly over a fairly short period of time so all one can ever hope to capture is competitiveness at a moment in time. Events such as the oil price shocks of the 1970s, or major trade liberalization agreements, such as the North American Free Trade Agreement, or sudden movements of labor or capital, or the election of efficient or corrupt government have caused cities to move tens of places in the ranking of city competitiveness<sup>28</sup>. Nonetheless, it is possible to gain a rough understanding of how well a city is doing in relation to other cities with which it competes or which it seeks to emulate. These efforts to measure urban competitiveness have generally utilized a benchmarking methodology, although there has been one set of studies that is more statistically based.

The benchmarking studies take a large set of variables, up to 100 or more, that it is asserted relate significantly to actual competitiveness. The selection of the variables is subjective and is based on an understanding of the forces behind competitiveness and of the nature of the economy of that moment in time. The variables selected for a study during the fordist, post-fordist, or post-post-fordist periods of the 1960s, 1990s and 2010s would presumably be quite different, although basic notions of productivity, availability of factors of production, transportation and communications infrastructure would probably be selected for all periods. But as we have moved from the earlier to the later periods 'hard' determinants, such as access to a port or to natural resources, have given way to 'soft' determinants, such as urban amenities, health care, and educational and cultural and recreational assets.

The most widely known of the benchmarking studies are done at the level of the national economy. *The Global Competitiveness Report* that is issued annually in conjunction with the World Economic Forum held in Davos, Switzerland, is the most famous of these studies<sup>29</sup>. It uses dozens of variables clustered in 12 categories and includes 140 countries. Another similar report, *The World Competitiveness Report*, is issued by the IMD Business School in Switzerland<sup>30</sup>. It includes 329 variables in 4 categories, each with 5 sub-categories, and examines 59 national economies. This methodology is simple to do, since it consists of little more than a compilation of data and then a ranking procedure for the cities in the study.

More to the point, two studies are regularly done with regard to the competitiveness of cities. The Globalization and World Cities (GaWC) index evaluates cities on their capacity to serve as centers of advanced

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<sup>28</sup> Peter Karl Kresl and Balwant Singh, "Urban Competitiveness: the Case of US Metropolitan Centres", *Urban Studies*, Vol. 49, No. 2, February, 2012, pp. 239-254.

<sup>29</sup> *Global Competitiveness Report*, London: Oxford University Press, annually.

<sup>30</sup> See: <http://www.imd.org/research/publications/wcy/index.cfm>.

producer services: accountancy, advertising, banking/finance and law<sup>31</sup>. There are several others that are done by business or commercial entities, such as Price-WaterhouseCoopers Cities of Opportunity and the Japanese Global Power Index, each of which has a limited focus. However, Ni Pengfei, of the Chinese Academy of Social Science, has done a comprehensive study of 500 cities for over a decade<sup>32</sup>. His Global Urban Competitiveness Report uses over 100 variables in seven input categories and nine output categories. Both sets of variables give similar results, but offer different insights into city competitiveness. In comparison with simpler benchmarking, Ni's approach is rather sophisticated, utilizing regression analysis, non-linear weighting and fuzzy curve analysis.

One thing that would be very useful in a world in flux would be an analysis of how the relative competitiveness of the cities in these studies have changed through time, and an analysis of the causes of these changes. I do not believe that such an analysis has been done.

The other approach to the study of urban competitiveness is one that is less subjective, uses fewer but arguably more relevant variables, and focuses less on the ranking of cities than on the determinants of their competitiveness, or lack thereof<sup>33</sup>. In this 'statistical' methodology, Kresl and Singh begin with three variables that are selected as indicators of competitiveness, verified through discriminant analysis for objectivity – retail sales, manufacturing value added, and a set of professional services. The results give a ranking of the cities, and regression analysis is then done to generate a set of usually 10-13 variables that can be taken to be determinants of the competitiveness of these cities. From the ranking of the determinants for each city one can gain an insight into the comparative strengths and weaknesses of each city with regard to its competitiveness, and thereby information that should be of use to local authorities in planning initiatives to enhance the relative competitiveness of their city. This methodology has been done on three different time periods between 1977 and 2002 and has shown how and why individual cities, and geographic regions, have experienced improvement or deterioration in their relative competitiveness.

The major limitation to application of this 'statistical' methodology is the poor availability of suitable data for a large number of cities. This is certainly not available at any international level – not even the European Union has adequate data on a large number of urban economy variables for any set of cities. Only for the United States, Italy, Mexico and China is this possible. Sadly, there is nothing to suggest that the necessary data will be more readily available in ten or twenty years.

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<sup>31</sup> See: [www.lboro.ac.uk/gawc](http://www.lboro.ac.uk/gawc).

<sup>32</sup> Ni Pengfei and Peter Karl Kresl, *Urban Global Competitiveness Report*, 2010, Cheltenham: Edward Elgar, 2010.

<sup>33</sup> Peter Karl Kresl, and Balwant Singh, *op. cit.*

## 2.2 What are the anticipated changes in the Global economy and its structures?

When we look to the future there are certain changes that are rather predictable. For example, the populations of cities in the developed countries of the North are going to age, through lower rates of natality and longer-life spans. Some changes are certain to occur but their specific nature is highly uncertain – technological change is the prime example of this. Other changes are considered to be highly likely by almost all who study them, but questionable by some, such as climate change or global warming. What is incontrovertible is the fact that to the extent that these changes occur cities, large and small, will be powerfully affected by them. An aging population will have negative fiscal impacts on cities, although there are substantial offsets to this as a result of the decisions of seniors to spend both their time and their money<sup>34</sup>. Global warming may make desert and southern US cities from Phoenix, through Dallas, to Atlanta, decreasingly sustainable as places to do economic activity on a world-class level. It is also probable that the traditional wine growing areas in southern Europe and at lower altitudes on that continent may no longer be suitable for growing wine grapes. This will also be true for wine areas in other countries as well as for many crops throughout the world. Technological change has transformed economic space, through advances in transportation and communication, and production, as a consequence of computers, new materials, and entirely new categories of goods and services; it will continue to do so, probably at a higher rate of change. However, as Peter Hall notes, quoting John Barrow: “Nothing truly revolutionary is ever predicted because that is what makes it revolutionary”<sup>35</sup>. So we are all a bit at sea when it comes to predicting anything beyond the obvious and incontrovertible.

Nonetheless, two urban specialists have recently offered us their visions of the future environment and structures that will dominate the situation of cities during the coming decades – Peter Hall, and Allen Scott. I will review the main points of each vision and then offer my own through the rest of this chapter. While there is an overarching harmony in their visions, each is distinctive in its way. Hall focuses on structures, and Scott suggests an essential characteristic of the economy.

In Hall’s vision mega-city regions will dominate the world economy. His mega-city regions are: “a series of anything between twenty and fifty cities and towns, physically separate but functionally networked, clustered around one or more larger central cities, and drawing economic strength from a new functional division of labour”<sup>36</sup>. These places operate as independent entities but are connected to others through dense flows of people linked by telecommunications and automobiles, but especially by high-speed rail

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<sup>34</sup> Peter Karl Kresl and Daniele Ietri, *The Aging Population and the Competitiveness of Cities*, Cheltenham: Edward Elgar, 2010.

<sup>35</sup> John D. Barrow, “John D. Barrow forecasts the future”, *New Scientist*, November 18, 2006, p. 36.

<sup>36</sup> Peter Hall, “Looking Backward, Looking Forward: The City Region of the Mid-21<sup>st</sup> Century”, *Regional Studies*, Vol. 43, No. 6, July, 2009, pp. 803-817.

lines, which he sees transforming much of Europe into “a single polycentric Megalopolis”. The US Metropolitan Statistical Area, in its various iterations, stands as a prime example of this structure, but Hall identifies eight such regions in Europe and, of course, notes the several that exist in Asia. Some of these regions may extend over a distance of up to 100 or more miles, depending upon the spatial distribution of population and the specific nature of the functional integration of the specific cities and towns. There is a resulting functional specialization among urban centers, as the mega-city regions offer efficient face-to-face information exchange, air and rail transportation hubs and commuter transportation, however, their high rents, pollution and congestion generate pressures for some activities to be shifted out to smaller and more congenial cities. This is currently most famously occurring with regard to Beijing with firms not wanting to locate their staff in a city in which the air is so dangerous for one’s health.

For Scott the world will be dominated by a “new city-centric regionalism” with the new large city regions being the “core building blocks of the global urban system”<sup>37</sup>. In this structure the support of central governments is shrinking and the city regions much undertake many initiatives on their own. Whereas with Hall nations are present as the origin and destination of migratory flows and as entities having some responsibility for educational policy and infrastructure planning, with mega-city regions doing the rest, Scott sees the activism of city regions as a consequence of the reduced capacity of national governments to act and to offer financial support, and also of the transfer of many functions from the level of the nation to that of international organizations. Scott is also more specific as to the activities that will be concentrated in the large city regions. Specifically, it is the activities noted above in the discussion of his “cognitive-cultural economy”, essentially a technology-intensive ensemble, business and financial services, and creative and cultural activities. This concentration of activities will be accompanied by the transfer of routine and manual manufacturing activities to secondary cities. This specialization will lead to spatial differentiation within urban regions and to a convergence of structures among them.

European economic geographers have been fascinated by the notion of polycentric urban regions for decades. Camagni and Salone looked at polycentrism in northern Italy, and differentiated between ‘synergy networks’ based on the metropolitan area of Milan, and ‘complimentarity networks’ and ‘milieu’ interactions in sub-regional industrial districts<sup>38</sup>. Kloosterman and Lambregts differentiated between intra-urban patterns of clustering of population for economic activities, such as in the major large cities, and inter-urban patterns in the Dutch Randstad and the Padua-Treviso-Venice area of northern Italy<sup>39</sup>. They stressed the economic, political and functional aspects of the relationships. Again, looking at the

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<sup>37</sup> Scott, ch. 9.

<sup>38</sup> Roberta Camagni and Carlo Salone, “Network Urban Structures in Northern Italy: Elements for a Theoretical Framework”, *Urban Studies*, Vol. 30, No. 6, 1993, pp. 1053-1064.

<sup>39</sup> Robert C. Kloosterman and Sako Musterd, “The Policentric Urban Region: Towards a Research Agenda”, *Urban Studies*, vol. 38, No. 4, 2001, pp. 623-633



Randstad, Meijers highlighted complementarity and co-operation as being the two mechanisms of synergy that are at work in the polycentric urban region<sup>40</sup>. In all of the works on polycentric urban regions the individual city is situated in a network of cities, usually without a dominant central city. Each participating city has something to offer and benefits from contact with the others. Hall contrasts two types of polycentricity. One is a morphological polycentricity that is comprised of towns and cities of different sizes, essentially a Christallian hierarchical structure, and a functional polycentricity in which the linkages are composed of information flows, via travel and communications, and the organization of firms. But he argues: "It is functional polycentricity that proves more significant, and it is not axiomatic that it yields either more competitive or more sustainable outcomes than its opposite, monocentricity"<sup>41</sup>.

Polycentricity based on milieu interactions, inter-urban patterns, and functional relations lends itself to networking that goes beyond urban regional structures based on spatial proximity to networks that are global in their participation. Global networks need not be restricted only to the Global- or World-cities that have international hub airports, major business and financial firm headquarters, and world notoriety; second tier cities with competitive strength in one or more productive sectors can also form networks. These networks can function similarly to proximity-based clusters, but are linked by telecommunications as well as by air travel, rather than by a short car or train ride. This structure is particularly effective for cities that are isolated or are located in peripheral areas. With access limited to invited participants they may be thought of as 'clubs' that consist of cities with significant commonalities that will find attractive the mutually beneficial interactions, joint projects, information sharing, and access to new technologies and best practices<sup>42</sup>. If a member ceases to be an active contributor, the others may choose to ask it to leave the network. It must be anticipated that this is a structure that will be increasingly important and valuable for many cities for which success and competitiveness are more challenging than they are for Global- or World-cities.

We have noted the de-industrialization of much of the industrialized world during the past 25 years. Much of this movement was driven by rising relative labor costs in Europe and North America. Decades of industrialization of Asia and Latin America have generated some economic development, striking development in some countries, and this has increased both living standards and labor costs. The natural result has been the movement of some manufacturing back to the old industrial countries from Asia and Latin America. The manufacturing activity; has been returning, but only at a higher level of technological sophistication and labor productivity that justifies the higher labor costs. This has meant the

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<sup>40</sup> Evert Meijers, "Polycentric Urban Regions and the Quest for Synergy: Is a Network of Cities More than the Sum of the Parts?", *Urban Studies*, Vol. 42, No. 4, 2005, pp. 765-781.

<sup>41</sup> Hall, pp. 814 and 815.

<sup>42</sup> Börje Johansson and John M. Quigley, "Agglomeration and networks in spatial economies", *Papers in Regional Science*, Vol. 83, 2004, pp. 165-176.

'jobless recovery' in the US<sup>43</sup> and 12 per cent unemployment in the EU. Cities may get their manufacturing activity back but only with fewer workers. Some of these technologically sophisticated workers will have higher wages, but over-all wages have been stagnant or declining in the US for the past three decades. The old industrial sites may very well not be suitable as new production facilities so mayors will still be left with the problem of what to do with abandoned industrial sites.

It is likely that in future years the comparative advantage of economies will be less that of manufacturing versus services, between developing and developed countries, and more that of specialization within both manufacturing and services. This will change the relationship within networks of cities as their economic structures become increasingly similar. This relationship will also be affected in developed countries by the transfer with developing countries of economic activity between the largest cities, even mega-cities, and increasingly attractive and competitive smaller and second-tier cities. Mexico City, Beijing, Shanghai, Mumbai and Jakarta will be less able to dominate the interest of international companies. A stable hierarchical structure among city economies by their importance is likely to be a thing of the past. This is already well under way but should be seen as a harbinger of things to come. In this state of flux and mutation any equilibrium in this relationship and in the resulting networks must also be considered to be transitory and mutable, depending on the ability of local leaders to maintain or to enhance the competitiveness of their city. This Castellsian flux would be in contrast to Hall's notion of a rather stable dominance by a handful of mega-city regions, but would be affected by developments in global warming, pollution control predominantly via substitution of cleaner fuels, such as natural gas, wind, and solar, for the soft coal that is so heavily used today, and diminished use of personal automobiles. At some point we will all be forced to accept the changes that will be forced upon us.

### **2.3 How can urban economies manage their affairs to enhance their competitiveness?**

The reality facing local leaders will not be entirely satisfying. When she wrote about Global Cities, Sassen was quick to note that the work force of what one could refer to as the command centers of the world economy was becoming segmented into highly skilled, highly paid workers at the top (the symbolic analysts) who managed enterprises and did the work that was possible only in such a center – the analysis, research, manipulation of symbols, planning and coordinating, and a mass of less skilled workers who supported this activity as staff in back offices or in menial support tasks. This social segmentation would create its own set of problems. Scott has articulated this more clearly, twenty years further in time. He notes the development of gated communities in which the skilled labor force can retreat from the problems of society, the deepening of urban social segregation enclaves for elite shopping and leisure, private education and

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<sup>43</sup> This has been analyzed in many of the reports of the Congressional Research Service of the US government. See: <https://opencrs.com/>

security forces, the expulsion of low income workers from the culture and amenity rich city center to inner and then outer ring suburbs far from their employment, and a variety of social pathologies<sup>44</sup>. City regions will rise to positions of dominance, with enormous capacity to create wealth, but there will be something rotten at the core.

Other less prominent industrial country cities will experience the same tendency toward income inequality. Most research has shown that increased income inequality tends to generate lower economic growth, by distorting equal access to education and skill development<sup>45</sup>. So, as is often the case, city leaders have a problem outlined for them, but the solution is equally clear, however difficult better access to education may be to enact. Income inequality is often also accompanied by the array of social pathologies that afflict so many cities throughout the world. Drugs, prostitution, crime, derelict buildings, and high unemployment all discourage in-migration of capital and skilled labor. During the past two decades the primary determinants of urban competitiveness have shifted from 'hard', such as access to raw materials or proximity to a port, to 'soft' factors, such as health care, recreation facilities, education and culture, public safety, and attractive parks and architecture<sup>46</sup>. Accompanying this has been an increase in attention being given to city marketing or branding. This is not so much 'making a silk purse out of a pig's ear' as it is presenting a city in its truest and most favorable light, given that it may be in close competition with one or more other cities that are quite similar in characteristics and assets.

Given these challenges, city leaders will have their hands full. What is a mayor to do? The tasks may be thought to be endless, but they can be condensed into a set of four, for each of which there are a variety of options. First, is the charting of a course for action – essentially a strategic-economic plan. Second, is the very important task of establishing an effective system of governance, integrating public and private sector entities, universities, business groups, and social organizations. Effective governance requires leadership and clear lines of authority. Third, is implementation of the plan that has been designed. Fourth, is the necessity to monitor progress toward achieving the objectives of the plan. Several years later it will be necessary to assess the appropriateness of the plan that was designed. This is all very basic but it is worth discussing for a moment.

Charting a course for future development must be done on a reasonable understanding of the city's relative strengths and weaknesses. Two methodologies were discussed above, benchmarking and statistical, that could be used for this. This study might reveal the city's situation with regard to transportation, urban amenities, education of the labor force, numbers of small and of large firms, fiscality, research facilities, industrial

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<sup>44</sup> Scott, p. 173.

<sup>45</sup> Amparo Castello and Raphael Doménech, "Human Capital Inequality and Economic Growth: Some New Evidence", *The Economic Journal*, Vol. 112, Issue 478, March 2002, pp. C187-C200; and Fred Hasanov and Oded Izraeli, "Income Inequality, Economic Growth and the Distribution of Income Gains: Evidence from the U.S. States," *Journal of Regional Science*, Vol. 51, No. 3, 2011, pp. 518-539.

<sup>46</sup> Kresl and Singh, *op. cit.*

clusters, and so forth. Then there will be the general understandings of what is required for competitiveness at the current juncture of time – is this an era of learning or creativity or innovation and, if it is, then what actions are imposed on the city?

If a plan is to be introduced it must be done in the context of an effective structure of governance. All of the major entities in the city that are in any way related to enhancement of competitiveness must be brought together with clear understandings of the task of each and of the lines of authority that will govern their actions. Many times a plan is excellent in its structure but is destroyed by a governance structure in which participants do not agree on lines of authority and adhere to them. For successful implementation each participant must carry out each task allotted to it, within the time allowed for this. Failure to achieve one task may make other tasks harder or impossible to achieve. At all stages it will be necessary for the leadership to monitor progress toward meeting the objectives of the plan. This includes regular appraisal of the wisdom of including some actions in the overall plan.

The most difficult step is the first – designing the plan itself. How should the course be selected? There is an interesting contrast between two cities in the United States – Chicago and Pittsburgh. Both cities were heavily affected by the oil price hikes of 1973 and 1979. Each was a major manufacturing center, with steel at the center and with a variety of steel using manufacturing activities providing a pillar for the local economy. The two cities experienced the consequences of the ‘Industrial Heartland’ being converted to the ‘Rust Belt’. Each wallowed in stagnation for several years, but then each charted a course for recovery that has been rather successful for each city. Pittsburgh broke rather completely with its past. The great steel mills have been reduced to empty fields or to shopping malls. The future of the city’s economy was seen to be based on the excellence of one of its universities, Carnegie-Mellon University, in robotics, computer science, and information technology, and of the other, The University of Pittsburgh, in medical technology and health care. Chicago chose a more ‘path dependent’ approach to its future. The historic strengths of Chicago were its status as a major rail transportation hub, its manufacturing, and financial services based on agriculture trading. The contemporary strengths of the city are, first, its status as a rail and air transportation hub. Steel production has been transformed from rolled sheet, rails, merchant bars and other basic products to very sophisticated alloy steels and specialized products, for which it is now a world leader. The financial services sector has shifted from financing grain trading and agricultural futures products to derivatives and foreign currency futures. Pittsburgh broke with its past but Chicago followed a path dependent course of development. This is just one example of the contrasting options that are available to city leaders in charting a course for the future of their economy.

The discussion of the recovery of seven European industrial cities is offered by Anne Power, Jörg Plöger and Astrid Winkler in their book *Phoenix Cities* should provide some inspiration to leaders of other industrial

cities that have suffered decline<sup>47</sup>. They identify ten areas of action that they have found common to all of these cases. The central threads that run through these areas of action are giving attention to the urban space and its characteristics (including infrastructure), personnel issues related to governance and the labor force, and social inclusion. The good news is that many of these are not costly items to accomplish and can be done by the individuals and entities in the city itself. The infrastructure initiatives are, of course, the exception.

City leaders should not be deterred because their city does not have a population of millions of residents. A city can be thought of as a large mass of residents and of activities, only a minor portion of which have anything at all to do with urban competitiveness. A study of US cities has shown there to be no relationship between size and competitiveness<sup>48</sup>. A city may have a couple of excellent universities with clusters of firms, large and small, that are directly linked to the research and innovation strengths of the universities. The universities may have, together, 50,000 to 75,000 students and faculty, and the related clusters may have another 100,000 employees. So there is a competitive core to the city of, say, 150,000 individuals – students are included since they have the potential to be the employees of the future. This probably describes the city of Pittsburgh. The remaining million or so residents have little or nothing to do with the competitiveness of the city. Would Pittsburgh be more competitive if it had an additional 500,000 hairdressers, retail clerks, auto body shop workers, accountants and travel agents? It is hard to make the case. So the crucial element here is the competitive core of the city, nested in some urban amenities and transport facilities.

Much the same can be said about city size and creativity or innovation. Norma Rantisi has shown us that it was not the size of New York City that was crucial for the creativity of the fashion industry, but in part it was the fact that one had chance encounters walking from residence to work place and while at work in a rather confined part of the city that led to the development of face-to-face contact and exchange that are seen to be so vital to creativity<sup>49</sup>. The city beyond lower Manhattan had little impact on this. Similarly Scott found that a mapping of creative industries in Los Angeles revealed that work and residence of workers were concentrated in places individuals found congenial – in the Pacific Ocean beach communities and in the environmentally-favored areas of the Hollywood Hills<sup>50</sup>. The millions of people living inland, to the east, were quite irrelevant to the creative process or milieu. So creativity has little relation, if any, to city size. It is worth noting the obvious point that creativity should not be thought of as something that is confined to a few industrial sectors, but should extend to all aspects of the life of a competitive city, including its governance and strategic economic planning process.

<sup>47</sup> Anne Power, Jörg Plöger and Astrid Winkler, *Phoenix Cities*, Bristol: The Policy Press, 2010.

<sup>48</sup> Kresl and Singh, *op. cit.*

<sup>49</sup> Norma Rantisi, "The Ascendance of the New York Fashion", *International Journal of Urban and Regional Research*, Vol. 28, No. 1, pp. 86-106

<sup>50</sup> Scott, pp. 126-132.

## 2.4 So – what do we see looking forward?

Thomas Friedman gained considerable notoriety with his notion that “The World is Flat”. His ten ‘flatteners’ capture the changes and innovations that many economists have been discussing for the past quarter century. He was taken to task by those who stressed the word ‘is’ in the title; Friedman countered in the introduction to a subsequent edition by writing to the effect that of course the world is not flat but that there is a significant movement away from the old hierarchy and the world is now ‘flatter’ than it used to be.<sup>51</sup> His point was that the hierarchical order between advanced industrial economies of the developed world and resource-rich and cheap labor countries of developing world are gradually being eroded. Deindustrialization and globalization are gradually making cities in the north and in the south more similar over time. At present there is considerable superficiality in this but he feels safe to predict that this flattening will continue and even accelerate as we move through the 21<sup>st</sup> century to the extent that differences in educational attainment, capacity to innovate, transparent and efficient market forces, and participatory political processes are diminished.

Some of the anticipated changes in the situation in which cities function are two-edged swords with consequences that cannot at this time be predicted. For example, it was often noted that with advances in communications and transportation technologies, the need for face-to-face contact would diminish and many workers in tech sectors could quit living in Los Angeles or New York and telecommute from Bozeman, Montana, or some other place with a quality of life that appealed to them. While some of the easily accomplished relocation of teleworkers has taken place, there has recently begun a movement against this development among some, most famously by Yahoo’s CEO Marissa Meyer. However, contact with co-workers in a space that is congenial to new thinking is becoming even more highly regarded by employers, and it remains true that these technological advances have, if anything, strengthened to effectiveness of being located in a large city, and that being in close proximity to co-workers remains strong.

We can raise the same question for the future of mega-cities and mega-city regions. Scott is the clearest about this being a world that is dominated by large cities, but he darkly sees these new world cities being dominated by gated communities, challenges to democracy, social segregation, pockets of urban squalor and a persistent underbelly.<sup>52</sup> Can this development continue for decades, or will there be reactions against these features of urban regions that look to their own future rather than to their somewhat dysfunctional contemporary make-up? Will future technological advance enhance their position as command centers or will smaller cities become more effective as competitors and as locations for a variety of desirable economic activities? Does growth of mega-cities occur exponentially or as a ‘lazy s’ development over time? In Mexico, migratory

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<sup>51</sup> Thomas L. Friedman, *The World is Flat* (release 3.0), New York: Picador, 2007.

<sup>52</sup> Allen J. Scott, *op. cit.*, ch. 8.

flows have become dominated by inter-urban movements, principally as Mexicans leave a continually less attractive Mexico City in favor of Querétaro and Puebla, among other smaller industrializing cities. In China, Chengdu and some other smaller cities in the interior have seen significant growth in economic activity and in function, in part due to government policy and in part due to the negative features of life in mega-cities such as Beijing – pollution, congestion, and so forth. In Europe and the United States, large cities, such as New York City, London and Paris, have not only had their growth restrained because of the attractiveness and aggressiveness of many smaller cities, such as Chicago, Atlanta, Lyon, Frankfurt and Milan, but some of them have experienced net out-migration. So the decline of the mega-city as the primary focal point for activity may very well be approaching, if it is not already here. Mayors of secondary cities have every incentive to try to enhance their competitiveness in relation to that of larger cities, and they are becoming aware that, to paraphrase the Eurocities cry – now it is their turn.

One unresolved issue is whether there will continue to be outlier countries that do not buy into the model? Will they discover an alternative model that will bring to city dwellers in those economies the benefits they seek, or will the tension between have and have-not societies be exacerbated over time? Will cities in places such as Afghanistan, Nigeria, Myanmar, and Somalia be able to participate in mutually beneficial international initiatives? Will continued violent conflict be part of the future? Or will they be seduced by the examples of cities in China, much of South America, and parts of Africa and Asia, which have modified their economic and political systems to move closer to the dominant capitalist model, and have reaped many of the predicted benefits?

In the preceding section of this chapter we noted the move toward mega-city regions and polycentric networks, and the negative aspects of these relatively new structures. We also noted the return of manufacturing activity to traditional industrial areas in Europe and North America. This was all in the context of climate change, advances in technology, aging of the population, and rising income inequality in most countries. The future this suggests is one of great impermanence, mutability and challenge, as well as being rich in opportunity. A premium will be paid to city leaders who respond to this complex situation with intelligence and creativity, and with a realistic appraisal of the current situation of their city.

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## **Chapter 3: European cities in an age of austerity: Why invest beyond the capitals?**

**Michael Parkinson and Jay Karecha**

### **3.1 The Eurozone crisis, cities and economic competitiveness**

The global recession and Eurozone crisis have already had a huge impact upon the European economy and present even greater future threats. They have sharpened the existing debate about policies for competitiveness as policy makers struggle to make the European economy succeed in an increasingly turbulent, global world. They have also raised questions about the contributions that different territories make to national competitiveness. In particular they have encouraged a debate about the economic contribution of capital and non capital cities and whether countries perform better if they concentrate their investment in their capitals or spread investment across a wider set of cities Dijkstra et al (2012), European Commission (2007, 2010). Recession in the property and financial services sectors have intensified debates in some countries about rebalancing economies and raised questions about which economic activities should take place where in future. For national governments, they pose classic questions about the relationship between territory, economy and governance and the shape of regional and urban policy. For the European Commission, they pose key questions about strategic investment priorities which are sharply reflected in debates about the future of Structural Funds.

This debate will become more important during the next decade as the crisis threatens to undermine the real achievements made by many European cities. In the past decade, cities in many countries improved their economic performance and made a growing contribution to national competitiveness. But it was a result of high performing national economies and substantial investment of public resources. Those conditions will not be found during the next decade. Many underlying economic and social problems in cities - which had been masked by the boom - have already been intensified by the crisis. There is a risk that economic and fiscal problems and the competition for scarce public and private sector resources will limit the growth of cities and widen economic and social gaps within them and between them and the capitals. So the debate is crucial. This article explores some of the policy and research questions raised by this debate.

#### **What do capital and 'second tier' cities bring to national economies? And what limits?**

Many argue that agglomeration economies mean that investment in capital cities offers greatest gains to national economies. In this view, capital cities have significant agglomeration advantages. They are typically the centres of national political, administrative and economic power. They have stronger private sectors. They are more integrated into global

networks. They are more likely to contain companies' headquarters. Their producer services are typically the most advanced. They contain major financial institutions which provide easier access to risk capital. They contain leading academic and research institutions. They are at the hub of national transportation and ICT networks. They attract public and private 'prestige' investment because they 'represent' their nations. Henderson, for example, argues that capital cities receive preferential treatment from national governments because public decision-makers find it easier to allocate resources to existing capitals rather than identify opportunities elsewhere (Henderson, 2009). Similarly it has been argued that private sector investors adopt the safer strategy of investing in buoyant, capital locations rather than taking risks with more distant, perhaps more economically marginal locations.

But there are challenges to this view. There are many worries about the dominance of capital cities, especially the costs and negative externalities of agglomeration. Agglomeration clearly produces economic benefits. However, the economic benefits of agglomeration are not unlimited. Capital cities can reach a point where diseconomies make them less competitive because of negative externalities caused by unregulated urban growth and diminishing marginal returns. Other researchers have focused more upon the positive contribution that non-capital, 'second tier' cities can make. Many second tier cities contain major concentrations of economic activity, substantial wealth creation potential, human capital and creativity. They contain higher order services and offer firms better local access than if they were all concentrated in the capital. Second tier cities can achieve many of the agglomeration effects of capitals, if they have the right infrastructure, facilities, capacity and powers. And they can lift the economic performance of their regions and reduce inter-regional inequalities, promoting territorial and social cohesion. So the issues remain contested.

### **How do policy makers view and respond to this challenge?**

The picture across Europe is diverse with huge national differences in policy approaches. However, some key messages are clear. In fact few countries have explicit policies for second tier cities. To the extent they have policies for places, until very recently most governments have focused primarily upon social cohesion and neighborhood policies rather than upon economic performance. That said, national governments typically concentrate attention and resources in capitals at the expense of second tier cities. There has been little explicit policy debate about the relationships between the two. However, the debate has begun in some of the Eastern countries, for example Poland and Romania, where the dominance of the capital is a major issue. Despite national differences, the policy issues are common to all countries. They have important implications for decisions about priorities and investment at national and European level. They pose a crucial question: Why should policy makers invest beyond the capital cities in an age of austerity?

**What analytical explanation?**

However there are few clear answers to this question, partly because decision-makers in different countries take different views of the problems and the solution. Partly also there is not a settled view amongst researchers and economists about the optimal distribution of economic activity and on the underlying issues of territorial scale, balance, hierarchy and economic performance. As with policy-makers, analytical and ideological approaches and therefore interpretations vary. But essentially there are two contrasting schools of thought. Free market analysts stress the importance of agglomeration economies as justification for allowing capital cities to grow in an unrestricted fashion to reflect market demand and forces. Another school of thought focuses upon the role of the state and public sector investment in creating the conditions where more cities can become more competitive. This view focuses upon the costs of agglomeration and the potential greater overall economic returns – as well as equity gains - that come from having more high performing cities rather than a dominant capital city. For a review of competing theories, evidence and interpretations see for example CAEE (2010), Cheshire and Magrini (2009), Gardner, et al (2011, 2012), Glaeser (2011), Henderson (2010) Leunig and Swafield (2008) Overman (2011), Overman and Rice (2008), Puga (2009), Sensier et al (2011), Steeples (2010)

There is not a settled view on these key analytical issues. But in recent years, the OECD has made a significant contribution to this debate with a series of studies exploring the contribution of different regions to national competitiveness. Some of its recent work has focused specifically upon the middle regions, showing that growth does not come only from a small number of leading regions at the top but from the many more regions further down a long territorial tail of the regional hierarchy, whose collective contribution is crucial. OECD's policy position is that the economic contribution of the middle regions is typically underestimated and governments should do more to maximize their contribution if they want to maximize national competitiveness. OECD, (2006, 2012a, 2012b), IPPR North (2012).

This article explores some of these issues. However, its focus is upon cities and city regions rather than regions. It is based on a major study of second tier cities across Europe involving interviews with policymakers, reviews of national policies, quantitative data about 124 second tier and 31 capital cities in 31 European countries and individual studies of 9 second tier cities - Tampere, Cork, Leeds, Barcelona, Lyon, Turin, Munich, Katowice, and Timisoara. This article provides some of the key quantitative evidence from this study. But in discussing some wider policy implications, it also draws upon the qualitative evidence in the study. On that basis, it argues that continuing over-investment in capital cities and under-investment in second tier cities in the long run will be unsustainable and lead to economic under-performance. It argues that although individual countries face different circumstances, European, national, regional and city regional leaders should exploit the policy levers, tools and resources they

have to encourage more, higher performing second tier cities if they want higher performing national and European economies.

### **3.2 How do second tier cities perform and compare with capitals?**

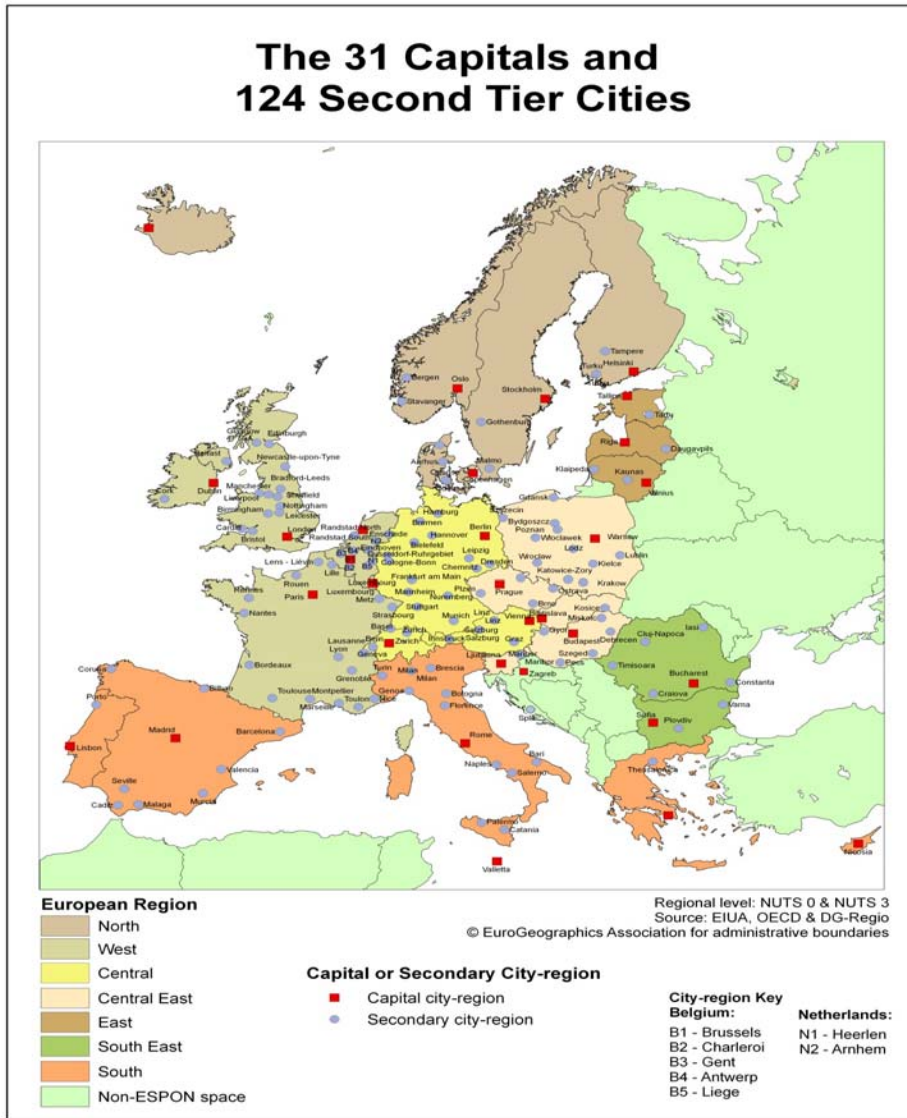
We define second tier cities as those outside the capital city whose performance is sufficiently important to affect the potential performance of the national economy. To identify them we use the boundaries developed by the OECD and DG Regio for metropolitan regions in Europe. (Dijkstra 2009) These essentially capture the functional economic urban area – the city region - not the narrow administrative area. To capture the most important we include all of them in the 23 countries with populations under 15 million. In the largest 8 with populations up to 85 million, we include those cities in the top two thirds of the metropolitan hierarchy of their country. This gives 31 capitals and 124 second tier cities. (Map 3.1) These second tier cities constitute almost 80% of Europe's metropolitan urban population. They lie between the capital cities which contribute a huge amount to their national economy and the many smaller places which contribute rather less. They are the crucial middle of the urban system.

cities to national economic performance across Europe and recent changes. To measure economic contribution we use evidence on total GDP to indicate overall economic weight and GDP per capita to show productivity. Data are primarily available for the boom period before 2007 so our analysis necessarily focuses upon that period. Nevertheless we do include some evidence of the impact of the recession.

#### **Total economic contribution. Capitals lead but second tier cities matter**

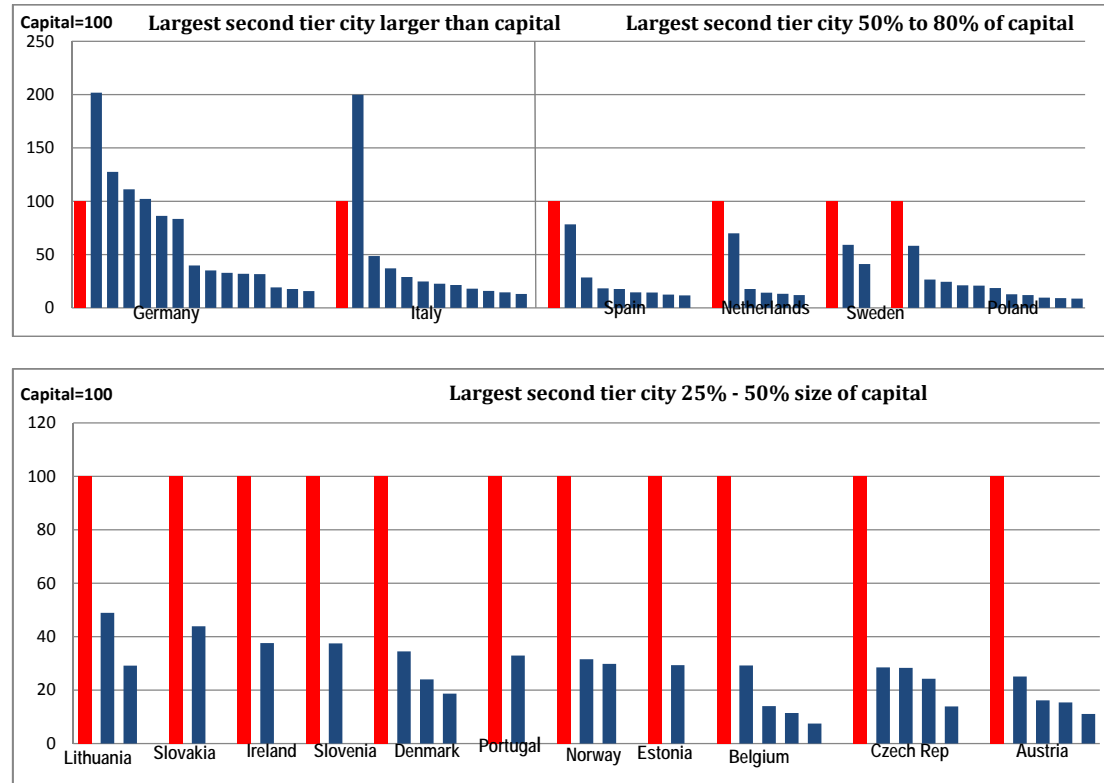
Capital cities do dominate their national economies. Their total GDP is bigger than that of their leading second tier cities in all countries except Germany and Italy. Nevertheless, 12 of the 28 economically largest cities in Europe are second tier. Figure 3.1 shows total GDP for capital and second tier cities and the extent of the gap between them. Germany and Italy are the only member states where the leading second tier city has a GDP bigger than the capital. In Germany's case this reflects its balanced urban system where 6 cities are of major economic importance alongside a capital whose growth has been historically constrained. In Spain, Netherlands, Sweden and Poland the most significant second tier city has a total GDP of between 50-80% that of the capital. In 11 countries the largest second tier city has a total GDP between 25 and 50% that of the capital. The capitals of Croatia, Finland, Bulgaria, Romania and Greece dominate their urban hierarchies with the GDP of their largest second tier city less than 25% that of the capital. Capitals dominate most in countries where the largest second tier produced only 10-15% of the GDP of the capital. These include the UK and France, where global London and Paris dominate, and the highly centralised Eastern states of Hungary and Latvia.

Map 3.1: 31 capitals and 124 second tier cities

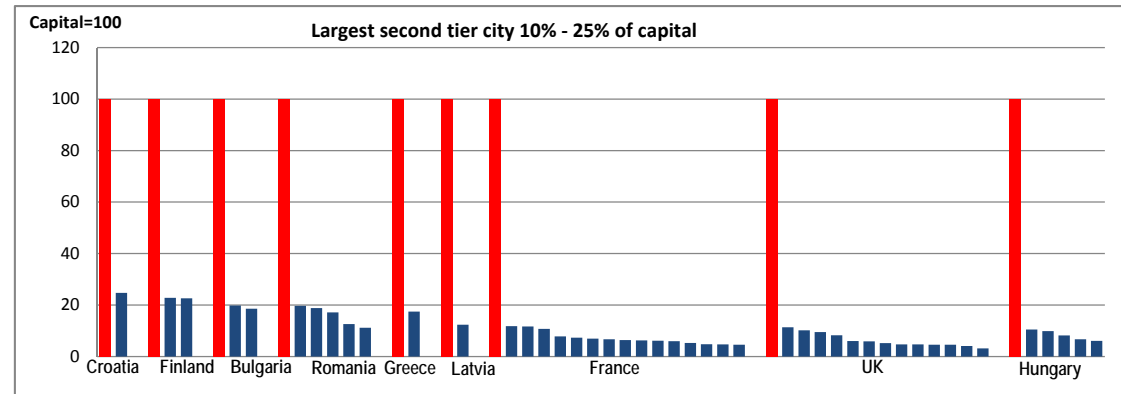


The following section shows the contribution of capital and second tier.

Figure 3.1: Total GDP in PPS, 2007



30 From urban systems to sustainable competitive metropolitan regions



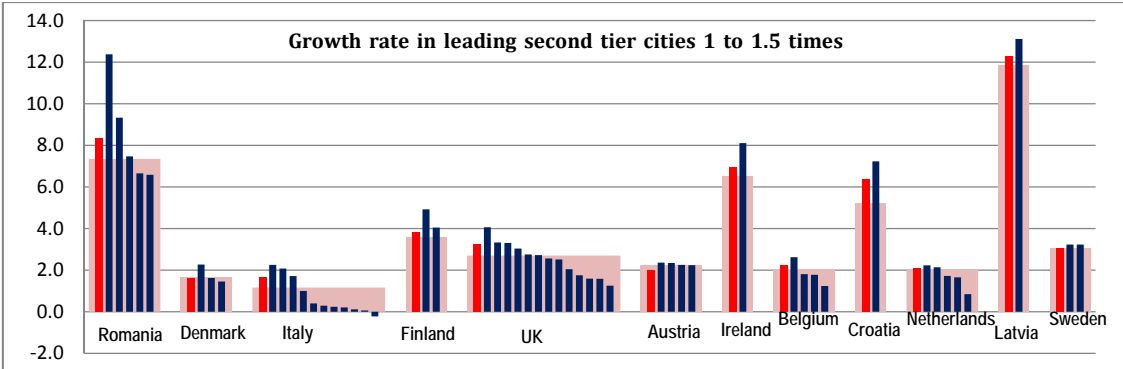
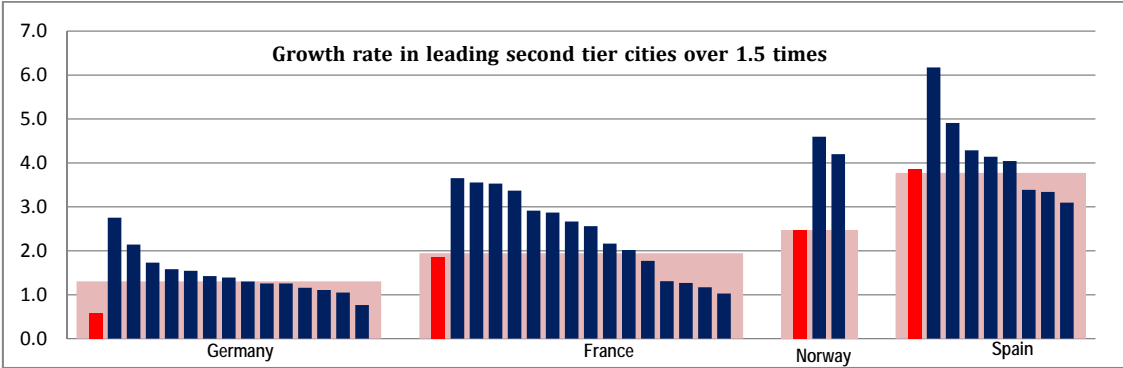
Source: Eurostat

**Growth in overall economic contribution. Second tier cities closing the gap but not in all countries**

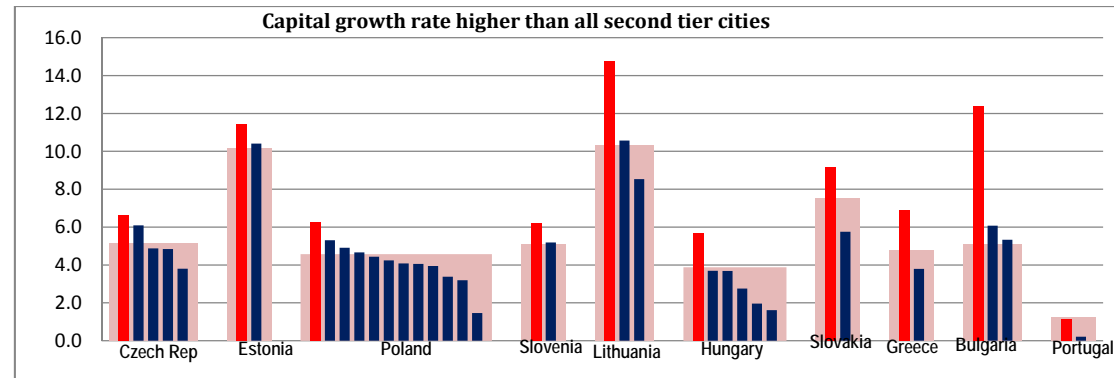
We have seen that capital cities do dominate their national economies. But change is also important. And many second tier cities strengthened their position in the boom years 2000-7. During that period in 16 of 26 countries, 1 or more second tier cities had higher annual GDP growth than their capitals. In Austria and Germany, all second tier cities grew more than their capitals. The relatively strong growth rates in a number of capitals and second tier cities in central and Eastern Europe, also stand out as their economies integrated into the European economy. (Figure 3.2).



**Figure 3.2: Total GDP Average Annual % Change 2000-7**



32 From urban systems to sustainable competitive metropolitan regions

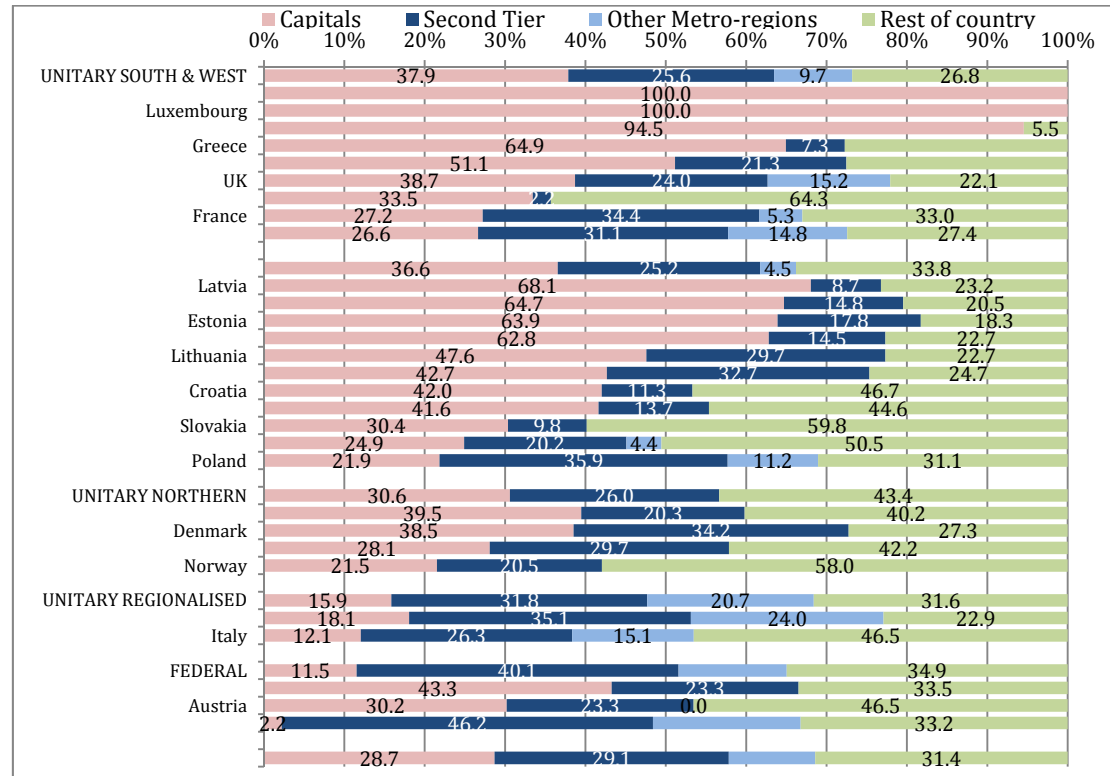


Source: Eurostat

**Shares of growth in the boom years**

Figure 3.3 shows the sources of growth in GDP 2000 to 2007. Capitals accounted for 29% of GDP growth. But second tier cities accounted for the same 29%. Also, second tier cities made the biggest contribution to growth in Germany, Poland, Spain, France, and the Netherlands. The continuing dominance of capitals in the former socialist countries stands out.

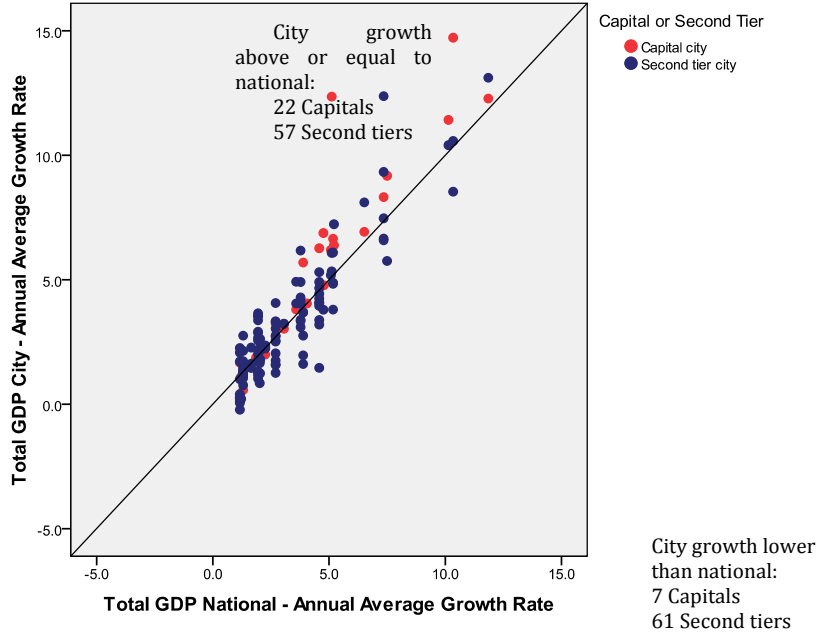
Figure 3.3: Share of Growth in Total GDP (%) 2000-7



Source: Eurostat

Figure 3.4 compares city and national growth rates in the boom period before 2007. Two thirds of capitals were above the national average. But almost half of second tier cities also grew faster than the national average.

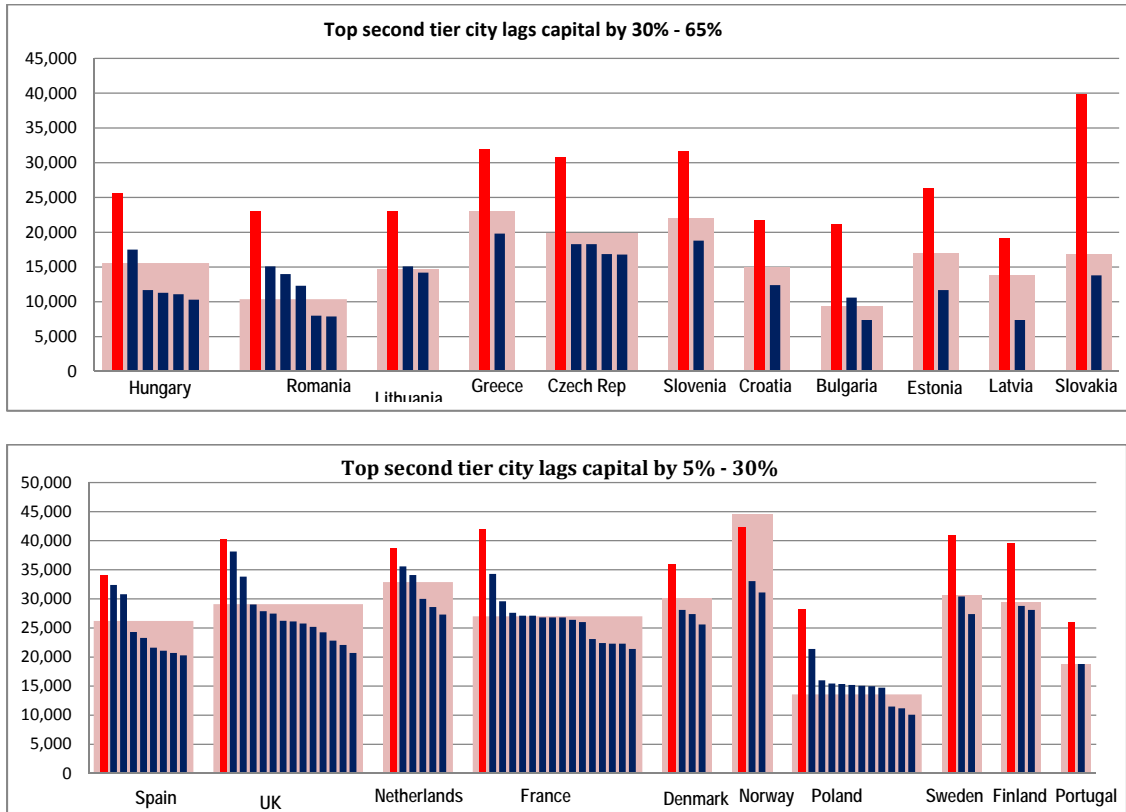
**Figure 3.4: Total GDP - City growth rates compared with national growth rates, 2000-7**

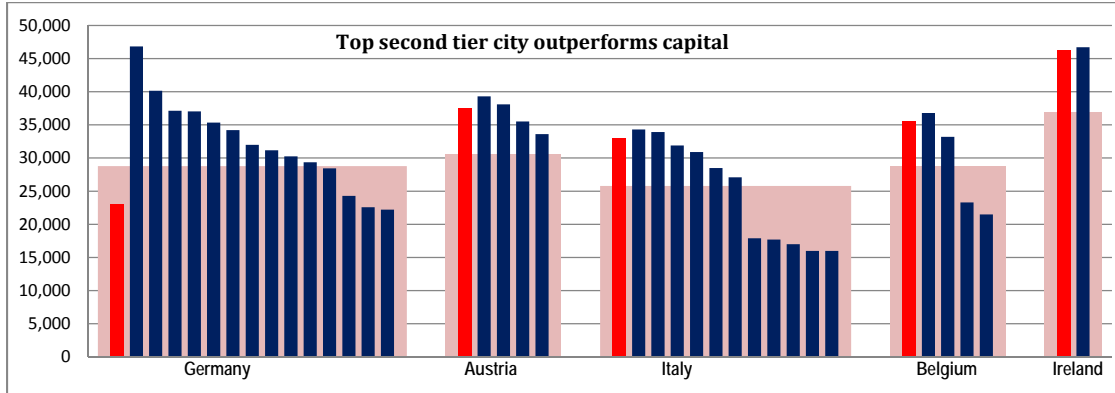


**Decentralization helps economic performance**

So far we have focused upon cities’ economic weight in terms of total GDP. We next look at their productivity in terms of GDP per capita. We also examine economic performance in terms of levels of centralization in different countries. Our classification identifies - from most to least decentralized - federal states, unitary regionalized, unitary decentralized Nordic, unitary old and unitary new member states from the highly centralized former socialist states. Figure 3.5 shows productivity in 2007. There is a significant relationship between the level of centralization and economic performance. For example, in the centralized former socialist states, all capitals perform significantly better than all second tier cities. In the three federal states Germany, Austria and Belgium, a number of second tier cities perform better than the capitals – virtually all in Germany. This is also the case in the regionalized state of Italy.

Figure 3.5: GDP per capita in PPS 2007





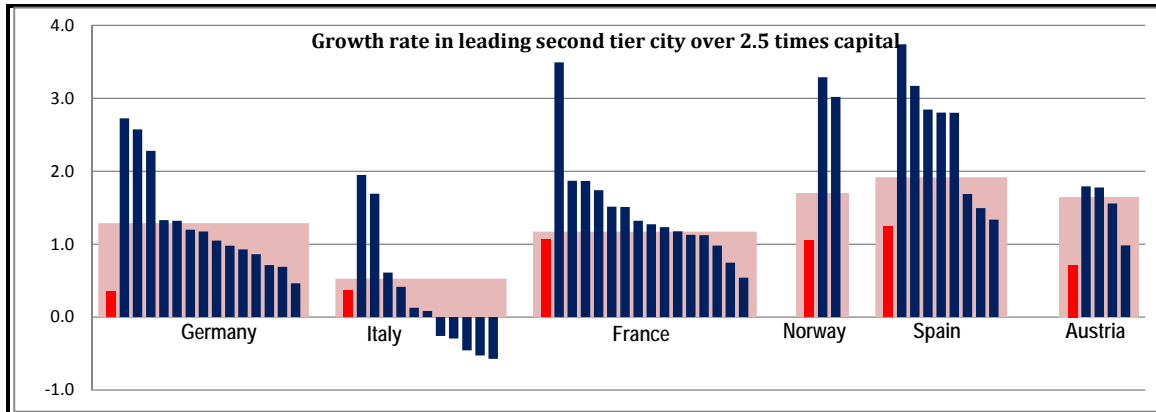
Source: Eurostat & DG-Regio

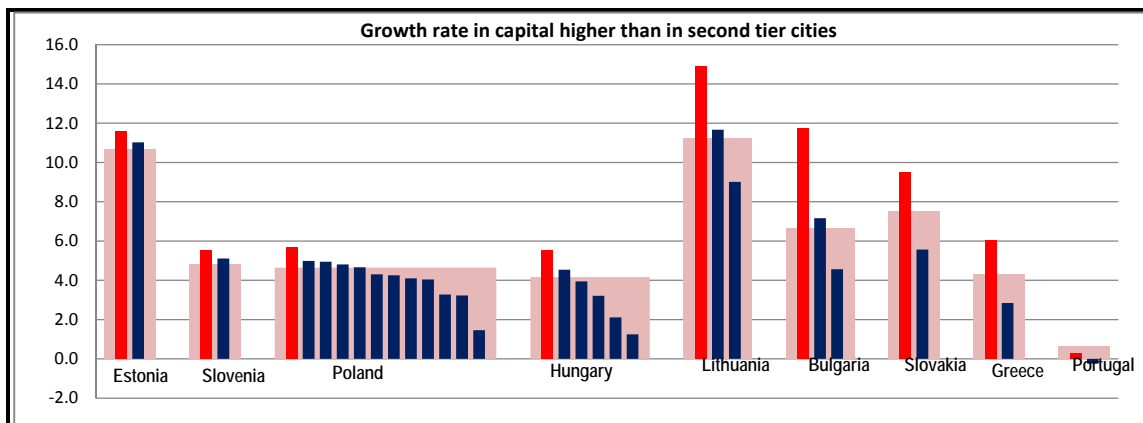
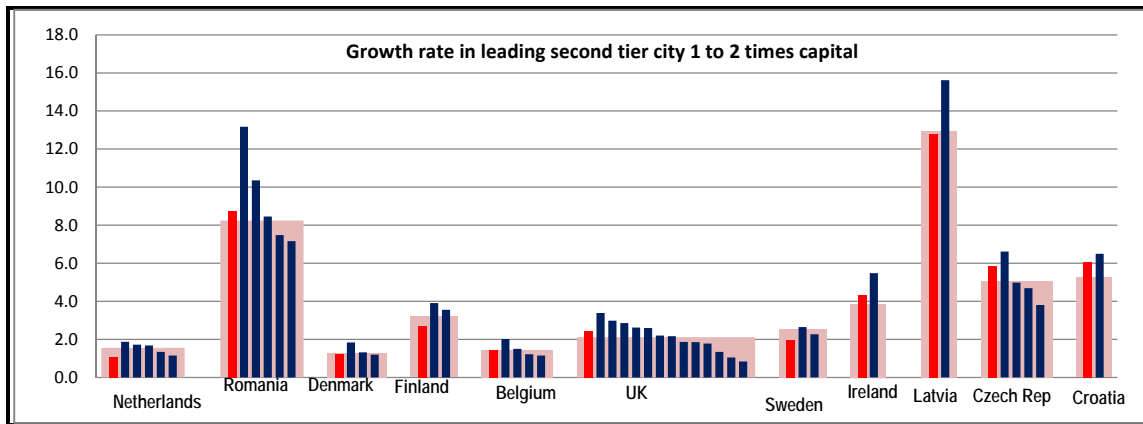
**Changes in productivity 2000-07. Some second tier cities outstrip their capitals**

Figure 3.6 by contrast shows the important dimension of change. There are very significant differences in the rate of growth of capital and second tier cities. Despite the economic dominance of capitals, between 2000 and 2007 many second tier cities grew faster than them. For example, in the Federal states, all of Germany’s and Austria’s and half of Belgium’s second tier cities outperformed the capital. In the regionalized states, all of Spanish and a third of Italian second tier cities grew faster than their capital. In the Nordic states, all grew faster than the capital. In the unitary states, all second tier cities in Netherlands, 12 out of 15 in France, 5 out of 13 in the UK performed better than their capital. In Greece and Portugal, however, the capitals grew faster than the second tier cities. The position in many of the new member states is markedly different. In the former socialist

states of Hungary, Poland, Slovakia, Slovenia, Estonia, Lithuania and Bulgaria all the capital cities grew faster than all the second tier cities and all but one in the Czech Republic.

**Figure 3.6: GDP per capita – average annual % change, 2000-7**





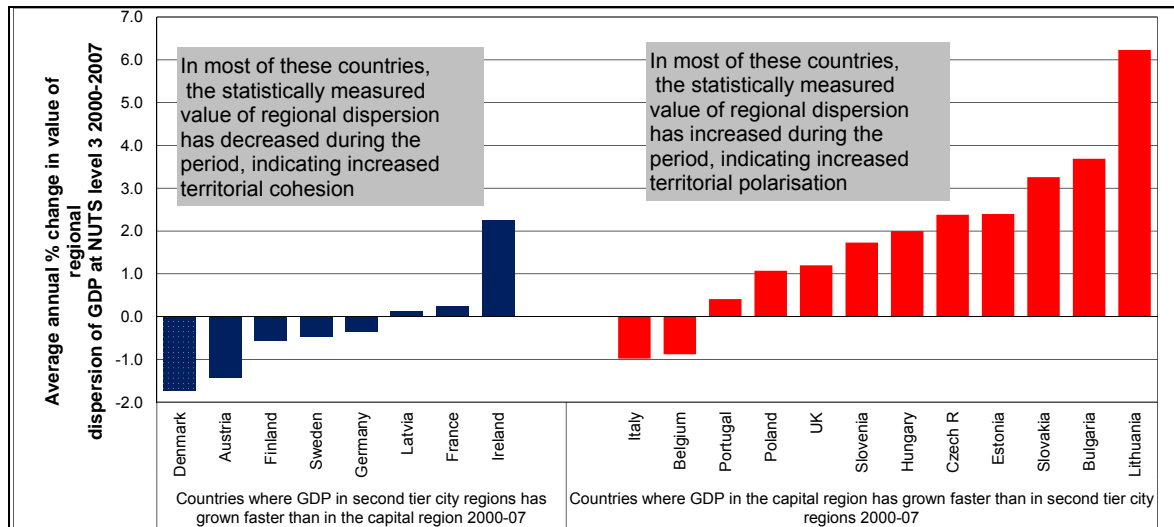
Source: Eurostat



**Impact of second tier and capital city growth upon regional inequality.**

Differential growth in capital or second tier cities also affects regional performance. We examined patterns of regional inequality, using a measure of regional dispersion, which shows the productivity gap between different regions within a country. Figure 3.7 below shows the relationship between regional inequality and the growth in capital or second tier cities 2000-7. In many of the countries where GDP in the second tier cities grew faster than the capital, regional inequality fell. By contrast in 10 of the 12 countries where the capitals grew faster than second tier cities, regional inequality increased.

**Figure 3.7: Growth of Capital & Second Tier Cities and Trends in Regional Inequality and Territorial Cohesion 2000-7**

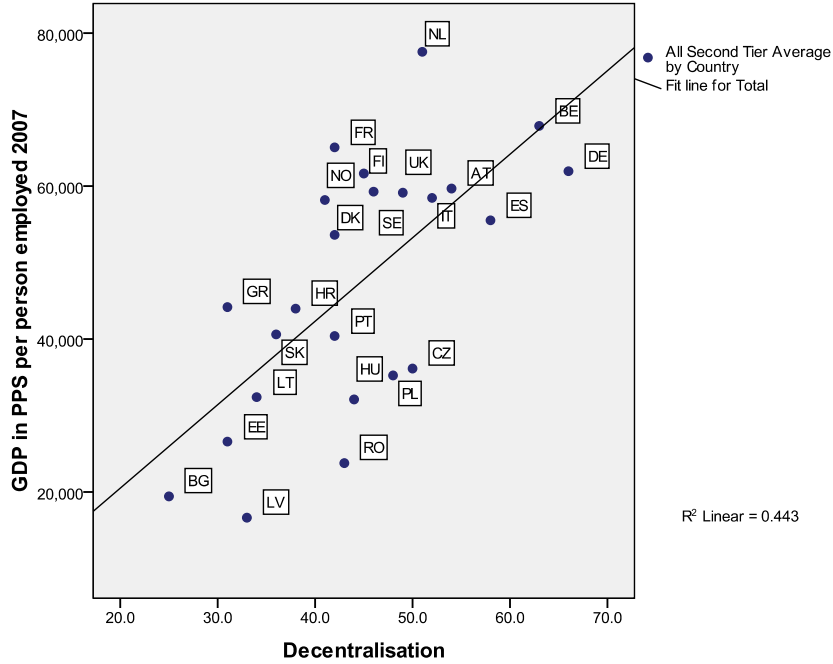


Source: Eurostat

**Decentralization encourages improved productivity**

Figure 3.8 supports the analysis above. It applies the Basel Economics Decentralization Index, which measures in quantitative and qualitative terms the extent of decentralization of responsibilities and resources from national to sub-national governments, to productivity data on second tier cities (Basel Economics, 2009). It shows that greater decentralization is associated with greater average economic productivity of second tier cities.

**Figure 3.8: Decentralization and Second Tier Cities' Average Productivity 2007**



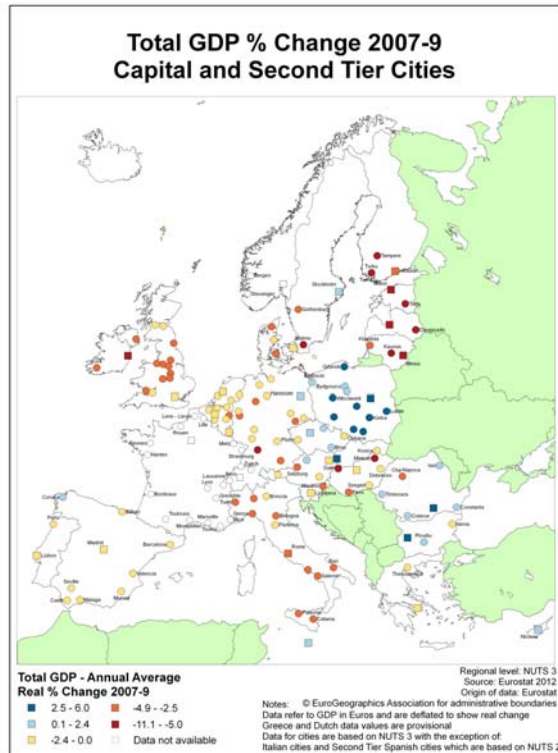
**The crisis threatens to undermine achievements of second tier cities**

Many second tier cities performed well during the boom years when they had national government support and investment. But the recession has had a major impact on many of them - in particular those which flourished during the boom decade. Map 3.3 shows the changes in GDP during the period 2007-9. More than 75% of the cities experienced GDP falls 2007-9. Capitals performed far better than second tier cities during the crisis. The better performing places were in Eastern Europe and in Poland in particular. The fastest growing 19 places – 12 Polish - were all in Eastern Europe. The Baltics have been heavily hit. Major Western European countries have all been hit. In Germany only Berlin grew. All other German cities GDP declined. In the UK all 14 cities declined. In Italy all 12 cities declined. In Spain 8 of 9 declined.

### Risk of increased gaps between secondary and capital cities

Although the crisis is still unfolding, there is evidence that the GDP gap between capitals and second tier cities which closed in many countries during the boom years, has begun to reopen. More generally there is a risk that the gap between the more and less successful cities across Europe will widen in the future. There will be intense competition between places for limited public and private investment in the coming years. There is a risk that private and public investment will focus on already successful cities which have better economic prospects. Because of this risk, national governments will need to be more explicit in their decisions about territorial investment programmes in the future than they have been in the past.

**Map 3.2: Total GDP % change 2007-9 capital and second tier cities**



### 3.3 Key messages

#### Capital cities dominate but second tier cities make an important contribution to competitiveness

The essential message of this article is that - with the exception of Germany - capital cities dominate the European urban system in terms of population, employment and output. The gap between capital and second tier cities is large and in virtually all the former socialist states of Eastern Europe growing. The total GDP of capital cities in 2007 was greater than their leading second tier cities in all but 2 countries, Germany and Italy. In 19 countries the total GDP of the capital was more than twice that of the

largest non-capital city and was as much as 8 times greater in 4 states - UK, France, Hungary and Latvia.

Nevertheless our evidence shows that all second tier cities made a contribution - and some a significant one - to economic growth in Europe between 2000 and 2007, even if many were overshadowed by capital cities to different degrees in different parts of Europe. But many have the potential to grow and the ability to benefit further from agglomeration economies. The size of the gap between capitals and secondary cities varies and in some cases is declining.

### **Signs of second tier cities improvement**

Also despite capitals' structural dominance, change measures show an important story. Despite capitals' dominance, second tier cities still made a positive contribution to growth and, in a significant number of cases, demonstrated their potential for increasing this contribution. In 2000 second tier cities accounted for 31% of population. Between 2000 and 2007, they accounted for 34% of population growth. By 2007, three quarters of the second tier cities had positive net migration rates and one third had rates above those of their capitals. Over the same period, they accounted for 29% of total GDP growth. And the top 36 second tiers provided one third of the total GDP growth that capital and second tier cities together generated.

In 16 states, 1 or more second tier cities recorded higher annual growth in total GDP between 2000 and 2007 than their capitals especially in Germany, France, Norway, and Spain. But it also happened in 3 former socialist states. And states across the Eastern parts of Europe experienced some of the fastest growth rates, as their economies integrated into the European economy. While this growth is under threat from the current recession it demonstrates that second tier cities can improve their performance and break out of path dependency. Individually, the majority of second tier cities do not match the economic contribution of capital cities. But collectively their contribution to national economies is significant.

### **Decentralization matters**

There is evidence that levels of government decentralization do matter. Between 2000 and 2007 for example, in the Federal states, all German and Austrian and half of Belgium's second tier cities outperformed their capitals. In the regionalized states, all Spanish and a third of Italian second tier cities grew faster than their capitals. In the Nordic states, all grew faster than their capital. In the unitary centralized states of Hungary, Hungary, Slovakia, Slovenia, Estonia, Lithuania and Bulgaria all second tier cities and all but one in the Czech Republic had lower growth rates than their capital cities. Only in Romania, Latvia and Croatia did some second tier cities outperform their capital.

### **Germany – unique but instructive**

Germany provides important lessons on the economic role of second tier cities. Of course Germany is unique in Europe. It is a Federal system. It has changed the capital city whose scale and growth has been artificially

constrained. The country has been divided. Its second tier cities are typically state capitals with extensive powers and resources. It has a unique system of regional banking and powerful middle sized firms. It is not possible for other European countries to simply imitate the structural characteristics of the German system. Nevertheless, the key principles of the German experience can be transferred between different countries. Its experience particularly underlines the argument that decentralization of powers and resources and the spatial deconcentration of investment leads to a higher performing national economy. Economic activity – private and public - is more evenly distributed across a range of cities that form a powerful multi-cylinder economic engine. Over the period 2000 to 2007 the population increased faster in 6 German second tier cities than in Berlin. 9 second tier cities outperformed it in employment growth. All 14 second tier cities also had productivity growth rates above Berlin. At a European level, 5 of the top 10 second tiers in terms of GDP growth between 2000 and 2007 were German. 5 of the top 10 cities in terms of our measure of performance in innovation were German. And all but one German second tier had a drop in unemployment between 2007 and 2009.

### **3.4 Policy messages: why invest beyond the capitals in an age of austerity?**

This article has reviewed evidence for the argument that decentralizing responsibilities, powers and resources and spreading investment and encouraging high performance in a range of cities rather than concentrating on the capital city produces national benefits. It has shown that, although the capital cities in many countries are responsible for a significant proportion of national GDP, second tier cities nevertheless make a significant contribution. In many cases the economic contribution that a series of second tier cities make is greater than that of the capital itself. So the contribution of second tier cities that lie between the successful capitals and the lagging cities is crucial to national economic success. Individually, second tier cities may lag behind capitals. But collectively their contribution to national economic performance is hugely significant. They are the key middle of the economic system.

In terms of policy, some countries concentrate attention and resources on the capitals at the expense of their second tier cities. But many are beginning to develop policies which explicitly target second tiers. More widely, in some countries mainstream national policies which implicitly affect urban competitiveness - innovation, diversity, skills, connectivity, place quality and strategic governance capacity – have been used to help second tier cities develop. Most interestingly, in countries which are less centralized and less economically concentrated, and where cities have greater powers, resources and responsibilities, cities have performed better and helped the national economy more.

### **Capital cities matter -but not at the expense of everywhere else**

Capital cities matter, are crucially important to their national economies and must be able to compete in a global market. But the risk is that they dominate the rest of the urban system so the national economy becomes spatially and structurally unbalanced. Sometimes second tier cities do benefit from national policy. But often this happens in implicit rather than explicit ways. Most states do not have a policy for second tier cities which means their collective interests are overlooked.

### **Decentralization and deconcentration can help economic performance**

The experience of Germany suggests that decentralization, deconcentration and a strong set of second tier cities helps drive strong national economic performance. By contrast, if the gap in economic importance and performance between second tier cities and capitals is very large, this will limit national performance. First, over-concentration in capitals will weaken more peripheral areas because they will not have buoyant second tier cities and support services. Second, second tier cities in systems dominated by capitals are less likely to feature in national policy because they are seen as less important. Third, the dominance of competitiveness-oriented urban policies will mean that already successful areas will be prioritized, increasing territorial imbalances. Finally, the lack of competitive second tier cities limits the scope to reduce the pressure on capital cities' land, property, environmental resources, transport and infrastructure by relocation.

### **How many second tier cities is enough?**

The number of high performing second tier cities a country can sustain will vary according to both the country's size and level of economic development. For example, in smaller countries there will be less scope for a large number of places to complement the capital. Equally, in the developing economies of the East, the capital city is the most significant driver of the national economy. In both cases, capital cities might remain the initial focus for investment because they are most likely to have the capacity and critical mass to succeed. Nevertheless, countries must have strategies for developing second tier cities, to spread economic benefits and help them become the economic motors of their wider regions. In particular, given the impact of national policies and resources, national governments should focus their policies to encourage as many high performing second tier cities as the pattern of urbanization and economic development permits.

### **So what should the policy approach be?**

Some second tier cities could contribute more if they were given greater European and national policy support, tools and investment. Some researchers and policy makers argue there is no need for government intervention to address regional and urban imbalances. In their view the market itself will self regulate and lead to increased investment in second tier cities as the costs and price of growth in the capital become more obvious and the opportunities in second tier cities become equally obvious.

But our analysis, in keeping with much regional economic analysis, does not support that view (Gardner et al 2012). The logic of over investment in the capitals and under investment in second tier cities has been shown to be too strong in too many countries. The relationship between capital and second tier cities should not be seen as zero-sum but as win-win. The capital city in virtually all European countries makes a huge economic contribution to the overall national economy. There is little demand for that to be artificially limited to encourage the development of second tier cities. The policy message is that it is better to encourage the development of both rather than to constrain the capital. The challenge is to grow the overall national urban economic pie without damaging the capital city. And a key policy issue is how to encourage second tier cities to absorb some of the capital city's growth as it reaches the limits of its capacity to accommodate it and the costs begin to outweigh the benefits.

**Greater transparency about territorial investment strategies. Greater focus on second tier cities.**

Urban policy across Europe is very uneven. There has been a shift in the orientation of explicit urban policies and greater emphasis on boosting urban competitiveness. But the national and regional funds allocated for them are dwarfed by mainstream spending programmes. Few states consider the effects of mainstream programmes and spending on the performance of second tier cities, since most governments are organized on functional rather than territorial lines. Also, very few states have introduced conscious policies to promote their leading second tier cities. Governments should be more transparent about their criteria for territorial investment and their impacts upon different city regions. Governments should monitor and publicize the territorial impacts of their expenditure programmes. In particular, Governments should ensure that all mainstream programmes, as well as special urban programmes are focused on second tier cities and not concentrated upon the capitals. National government policies, for example, for innovation, research and development, education and skills, transport and connectivity, infrastructure investment have a major impact upon the relative performance of capital and second tier cities. It is crucial they are used strategically to avoid over concentration upon and overheating of the capital as well as to avoid the limiting of scarce resources to second tier cities. These principles will become more significant in a period of austerity.

**For Europe**

A final policy message is for the European Commission. City regions are crucial to the delivery of its strategic goals identified in EU2020. (EU2010) It must take city regions - and their leadership - more seriously in future. Commission policy for cities has varied in recent years and the economic place making agenda has fluctuated in its significance. The issues have slipped down the Commission's agenda in recent years and should be reasserted. The Commission needs to exercise leadership and provide clarity and resources in this field. It should do more to ensure

that the economic potential of second tier cities is clearly recognized in its strategies. The territorial impact of all Commission policies, not just those of DG Regio should be made more explicit. The sectoral policies of the Commission should be better integrated. But the key challenge is to ensure that not only the explicit targeted resources but all mainstream Commission funding impacts on second tier cities in a more coherent way than it currently does. In a period of austerity, it is crucial that the Commission commits to the importance of those cities. First it should not retreat to a policy of concentrating only on small socially deprived areas but focus more widely upon economic place making. Second it must not focus only on a limited number of already successful places but should make the wider longer term investments that will bring longer term economic prosperity to more places, more countries and hence to Europe.

So for policy makers at all government levels the message is clear. Strong capitals matter to nation states' global positioning and competitiveness. However, strong second tier cities also matter. Both capital and second tier cities must be supported in future. It is a win-win, not a zero sum relationship. Governments at all levels should help second tier cities so they can emerge from the current recession with more 'investment ready' places to maximize future national economic performance. The individual circumstances of countries, regions and city regions will vary and so will policy responses. But some general principles to guide future territorial investment are clear. Specifically governments should invest more in second tier cities when: (i) the gap with capitals is large and growing (ii) the business infrastructure of second tier cities is weak because of national underinvestment and (iii) there is clear evidence about the negative externalities of capital city growth.

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## **Chapter 4: Urban Dynamics and Knowledge Locations**

### **Understanding the development of a policy provision**

**Luis de Carvalho**

#### **4.1 Introduction**

This chapter has been written to honor my promoter Prof. Dr. Leo van den Berg, with whom I learned to look at cities from a dynamic perspective. His early insights on the behavior of urban actors and on the role of quality of life in city development are important contributions to understand the contemporary development of knowledge locations in cities.

From the late 1980s onwards and as the knowledge and information economy unfolded, many cities started investing in *knowledge locations*: area-based, initiatives aimed to agglomerate knowledge intensive activities in designated districts or city areas. Cambridge Science and Technology Park and Singapore's *One-North* are just two among many more examples. While during the late 1980s and 1990s most of the knowledge locations were developed in suburban locations (e.g. in empty plots close to university campuses, like in Cambridge), their development in fully fledged urban areas became much more frequent over the last decade-and-a-half (like in Singapore). For example, by the late 1990s Helsinki was already reconverting an old pottery factory area into the creative and innovation district *Arabianranta*; in 2005, the City of Dublin started the development of its *Digital Hub* right at the core of the urban fabric. Nowadays, knowledge locations are still developed in very different areas within functional urban regions; moreover, despite the criticisms of many observers, knowledge locations are still among the most popular local economic policy tools.

This chapter contributes to explain the growing attention to knowledge locations over the last decades, as well as their nuanced spatial preferences within cities and regions. To do so, it frames the development of knowledge locations in a theory of urban and regional dynamics and the urban life cycle (van den Berg, 1987). Van den Berg's framework introduces two dimensions of interest to understand the contemporary development of knowledge locations in cities. First, it conceptualizes the behavior of urban actors (residents, companies and government), recognizing that their interactions drive urban development patterns and concrete policy provisions (such as knowledge locations); second, it introduces the role of fundamental societal developments as catalysts of urban policy and change.

This chapter is organized as follows. Section 2 explores how van den Berg's framework of urban dynamics provides theoretical scope to understand the development of knowledge locations within cities. Section 3 builds on van den Berg's theory and reflects on the nuanced placement of knowledge locations within functional urban regions – suburban locations and city cores – recognizing the potentially heterogeneous preferences of knowledge workers across different types of industries. Moreover, it

presents a typology of knowledge locations resulting from different combinations of industry's knowledge base and urban preferences. Section 4 wraps up the analysis.

#### 4.2 Urban development dynamics and the urban life cycle

In order to understand the growing attention to knowledge locations we first need a general analytical framework to understand the development dynamics of their host cities and urban regions. Van den Berg's (1987) theory of urban dynamics and the urban life cycle provides a neat and appealing starting point to do so. It is particularly useful here as a device to theoretically conceptualize the *catalysts* behind the steady emergence of knowledge locations from the early 1980s onwards.

In line with van den Berg's rationale, the emergence of a new knowledge location can be understood as a new government *provision*, responding to the changing demands and preferences of urban actors (residents, companies). Another important feature is that van den Berg's underlying theory considers urban change – including the development of new infrastructures and policies – as a joint result of both actor's *self-organization* dynamics and preferences (which on their turn respond to fundamental societal changes), but also of deliberate *policy and planning* action (from the government) to accommodate those new preferences.

In a nutshell, van den Berg's theory provides an integrated framework to explain urban dynamics (concentration and de-concentration of people and jobs within urban regions) as a result of changes in the behavior of urban actors in space: residents, companies and government. According with the theory, those actors seek to increase their welfare functions, which depend on the match between 1) the supply of welfare elements in place (e.g. living facilities for families; location factors for companies; social welfare for the government) and 2) the actor's preferences, which are associated with current economic, social, political or technological societal structures. The spatial behavior of each group of actors is initially propelled by new preferences, and in turn associated with progressive and fundamental societal changes (e.g. diffusion of the car in society, increasing value attached to the living environment), but subsequently also by changes in the location potentials provoked by actions of the other actors (e.g. decisions of migration, transport use, industrial relocation, etc.). In a similar vein, the government reacts to these changes in order adjust policies and provisions that fit the residents and companies new demands (e.g. housing, infrastructure or economic policy).

Van den Berg (1987) recognizes that the demanding-following nature of government's behavior often steers further the spatial behavior of other actors, leading to chains of circular and cumulative causation. An example is the downward spirals of city centres, accentuated by the provision of new infrastructure in sub-urban locations, which over time became detrimental to urban regions as a whole. Conscious of this tension, in subsequent work and from a policy perspective, van den Berg and colleagues (van den Berg et al., 1997; van den Berg and Braun, 1999; van den Berg et al., 2007)

made a plea towards the adoption of a more proactive and anticipatory (vs. reactive and demand following) urban management orientation.

The abovementioned theory of urban dynamics explains the development patterns of urban regions through four different historical stages from the industrial revolution until mid-1980s: *urbanization*, *sub-urbanization*, *dis-urbanization* and *re-urbanization*. The urbanization's stage is associated with a fundamental development (industrial revolution) and has led to the concentration of companies and residents in fast growing cities. Over time, the increasing pollution, land prices and nuisance of the industrial city progressively led a sub-urbanization stage in which residents steadily moved to suburbs (the city's hard ring) while keeping most of the jobs in the central city; this spatial change has been underlined by another set of fundamental developments – associated with the diffusion of car use – and was further propelled by government provision of urban infrastructures such as roads and urban services in the suburbs.

The next stage – dis-urbanization – is of further de-concentration as residents and jobs both leave the core city and the hard ring towards a “soft ring” of small and medium sized municipalities, free of congestion and nuisance and with lower land prices. According with van den Berg's analysis, this stage is underpinned by the growing value attached by society to the living environment, followed by the new government's support for further infrastructure and housing development. This shift originated the consolidation of metropolises with diverse fully fledged cores and rings, closely-knit and interdependent, working as functional urban systems.

By the early-mid 1980s, as some old cities in large metropolis started to attract back companies and residents, van den Berg (1987) identified the beginning of a general shift towards a new urban development stage – re-urbanization – primarily linked with the emergence of a new “informational economy”. This new informational economy, thriving of immaterial inputs and outputs, entailed new location factors and preferences. For example, companies were growing smaller in size and becoming increasingly reliant on immaterial inputs and highly-qualified, educated workers. In turn, those highly-qualified workers (who are also residents) increasingly attached a premium to the quality of the living environment. On the face of these trends, van den Berg predicted growing competition between different cities within the functional urban region to attract the highly-qualified residents and companies, through a number of provisions to cope with actors' (people and companies) new demands.

What does this imply for the study of knowledge locations? In line with this theoretical framework, from the 1980s onwards, one of the government's *reactions* to cope with the new set of preferences has been the *provision* (alone or together with other stakeholders) of knowledge locations. Science and technology parks have been perceived since then as a good fit to cope with and support the demands of new information-based industries (e.g. ICTs, biotechnologies). They provided e.g. facilities for smaller companies with moderate office rents, in physical proximity to information and knowledge (e.g. universities, other companies), in an often

clean and nuisance-free environment. The interest in knowledge locations gained momentum towards the late 1990s as the previously identified trends consolidated and the global competition to attract and retain investments and companies gained a strong urban and regional dimension (van den Berg and Braun, 1999).

One of the first international studies on knowledge locations (Castells and Hall, 1994) corroborates this perspective. Castells and Hall (1994) argued that the development of knowledge locations (called *Technopoles* in their study) was part and parcel of three fundamental developments with profound impacts on the playing field of cities, namely a technological revolution based on information technologies, the formation of a global economy and the emergence of new modes of production based on information and knowledge. As the authors put it, knowledge locations did not emerge by accident or fashion. They represented deliberated planning attempts by public and private parties “to help [to] control and guide some exceedingly fundamental transformations [affecting] society, economy and territory, [that were] beginning to redefine the conditions and processes of local and regional development” (p. 2). Over the last decades, the unfolding of these developments went hand-in-hand with the development of new knowledge locations.

#### **4.3 The urban turn and the persistence of locational diversity**

Nowadays, the large majority of knowledge locations locate within (or in the close proximity of) large urban regions (e.g. IASP, 2010). As economic development becomes increasingly reliant on immaterial inputs and ideas, there is nowadays a broad consensus that the role of cities as economic and innovation engines has been largely reinforced (e.g. van den Berg et al, 2005; McCann, 2008; Glaeser, 2011). Knowledge locations are part and parcel of that phenomenon. The concentration of skills, knowledge institutes, entrepreneurs and innovative companies in large urban regions often pushes and motivates the development of knowledge locations to steer these dynamics further. Even if to some extent knowledge locations try to emulate the success and agglomeration dynamics of cities and urban regions in a “smaller scale”, their emergence and development ultimately rely and are motivated by the conditions offered in urban regions and by the requirements of their actors. The development of knowledge locations requires at least a minimum level of knowledge endowments (knowledge producers and/or economic base), and those are almost invariably present in some kind of urban agglomeration.

Recently, van Winden (2011) identified an urban turn in the development of knowledge locations, associated with the “re-urbanization” of knowledge. From uncharacteristic suburbs, knowledge locations are increasingly being developed in city cores. In line with van den Berg’s theory, it is argued that knowledge workers and companies increasingly value easier interactions with their peers, which is facilitated in city centres; moreover city cores are often well accessible and endowed with more and more diversified amenities, two important attributes as life and work

becomes increasingly intertwined. Finally, workers would be placing more value to identity in the work place, and thus would prefer places with history and aesthetic attributes than anonymous suburbs. However, van Winden (2011) also acknowledges that even if we are in the presence of a generalized “urban turn” in which knowledge locations are “moving back” to the urban fabric of core cities, other knowledge locations are still planned and developed in greenfield suburban locations, with limited urban ambience. Is this associated with weak-sighted policymakers, failing to understand the demands of firms, workers and residents, or are there other arguments?

The urban life cycle theory helps to answer part of the question. As predicted by van den Berg (1987), the former development of functional urban regions coupled with new location factors of the knowledge economy (e.g. quality of the living and working environment) resulted in increasing inter-municipal competition to attract skills and companies. In a context of increasing accessibility within the functional urban region (only mitigated by growing congestion), a number of facilities and “welfare potentials” can be accessed from different locations, giving rise to what van den Berg (1987) called a “spatial indifference curve” for choosing a location within the functional urban region. By the early 1980s, not surprisingly, the spatial orientation of the first knowledge locations favored greenfield locations within large functional urban regions, with lower land prices, good accessibility, pollution-free and close to the (already) suburbanized and de-urbanized university campuses.

However, as re-urbanization trends intensified during the 1990s and 2000s, a more nuanced spatial picture emerged, and the attractiveness of the urban fabric for the development of knowledge locations increased. On the one hand, it has been associated with the preferences of knowledge workers for amenities, leisure, consumption and new, more interactive working-living arrangements – as argued by van Winden (2011). For example, as innovation increasingly relies on face-to-face interactions and temporary projects concentrated in time, the worker’s preferences call for an environment that facilitates meetings and interaction, not only during office hours but also after. Moreover, beyond office and laboratorial space, workers increasingly call for interaction, meeting and leisure possibilities in lively urban settings. On the other hand, namely in Europe, a reason for the development of knowledge locations in the urban fabric has been associated with the opportunities opened to regenerate empty spots left vacant by the closure of manufacturing sites of large companies. Despite the high costs for cleaning the soil (as a consequence of previous industrial activities), it is often still beneficial (and profitable for real estate developers) to redevelop these sites due to high demand for the scarce space in central urban locations.

The previous arguments explain the reasons behind an “urban turn” in the development of knowledge locations, but do not yet fully explain the persistence of diversity in the location of such spaces within larger functional urban regions. If *provisions* such as knowledge locations respond

to the preferences and demands of residents/workers and companies (van den Berg, 1987), an answer for why knowledge locations are still developed in greenfield places should also consider that knowledge workers and knowledge-intensive companies are not a homogeneous whole, but have perhaps different understandings and perceptions on what the “quality” of the living and working environment is. This means that they must have different “spatial indifference curves”, showing different sensitivities to distance and access, and that different locations within a functional urban region are not perfect substitutes for each other.

Recent work of Asheim and colleagues (Asheim et al., 2007; Asheim and Hansen, 2009) confirms this perspective and provides hints to solve the puzzle. Based on the distinction between three general types of knowledge – analytical (science-based), synthetic (engineering and problem solving based) and symbolic (aesthetic and artistic based) – they review and analyze the *revealed* location preferences of knowledge workers whose specializations differ across those types<sup>53</sup>. Overall, their empirical work concludes that there are indeed significant differences on how knowledge workers weight their living and working preferences within large urban regions.

The preference for city centres and urban cores are more significant for workers and activities relying on symbolic knowledge (artistic and aesthetic). Design firms, architect agencies, media companies do prefer environments with a distinct and urban identity (Florida, 2008). On the one hand, work and living are mixed up in time and space. Workers think more in terms of projects rather than on fixed employers (Grabher, 2002); free-lancing and temporary working is frequent and often relies on public and urban facilities as meeting places (e.g. restaurants, cafes). Such activities are often deeply involved in cultural production and consumption, and thrive in a lively and diverse urban environment, often associated with inner and core city atmospheres (Hutton, 2004). Taste and images are often “negotiated” and “constructed” in such places. “Buzzing” cities are important places for knowledge transmission and innovation in these industries to the extent that they favor easier access to strategic rumors, gossip and know-who (Asheim et al., 2007).

The story is rather different for workers and activities relying on synthetic and analytical knowledge bases. Engineers working in e.g. advanced machinery industries tend to prefer living in more quiet suburbs (see also Asheim and Hansen, 2009). In engineering-based activities, frequent “face-to-face” contacts and user-client interaction is vital in problem solving and innovation (e.g. Gertler, 2008), but that can often easily be achieved within the setting of the functional urban region, not only because of physical proximity but also backed by mutual understanding and social proximity. City centre locations are not only often unnecessary, but frequently incompatible with the physical needs of such industries. Overall, evidence

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<sup>53</sup> Naturally those are “pure” types, and most of the activities and innovations actually rely in more than one type of knowledge base. It can be however demonstrated that each type of activity relies on a dominant type of knowledge base (the one “it cannot live without”).

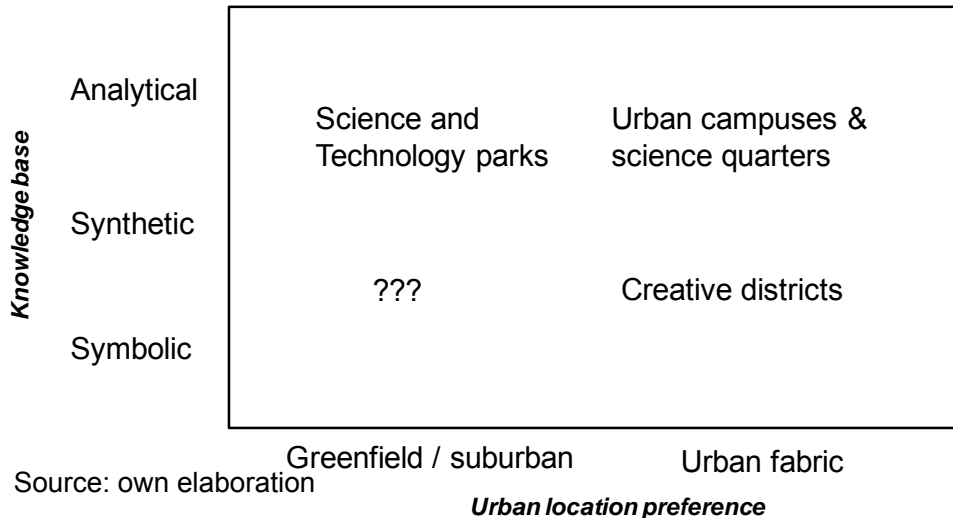
shows that workers in these fields put more value of the “business climate” (presence of knowledge and businesses ensuring cash flows) than on the “people’s climate” of core cities, with cultural and leisure amenities (Asheim and Hansen, 2009).

The preferences of scientists relying on analytical knowledge are somehow in-between. The key location factor is the proximity to renowned research groups and state-of-the-art laboratories (e.g. physics, biology, etc.), often found in large urban regions but not necessarily in city centres. All the rest being equal (i.e. access to such facilities and research colleagues), evidence suggests that this group reveals preference to live in dynamic and lively city centres, as the general “creative class” theory suggests (Asheim and Hansen, 2009).

The former evidence on the preferences of residents/workers and companies provide a more complete and nuanced answer on the reasons for the persistence of diversity of knowledge locations with large functional urban regions, or in other words, why many knowledge locations (but not all) are moving back to cities centres. In a nutshell, although there is a visible “urban turn” in the spatial placement of knowledge locations, actor’s (workers, companies) preferences – which vary across different types of knowledge base – impact on the spatial placement of planned knowledge locations within urban regions.

Moreover, a knowledge location is a “negotiated” provision, not a fully “owned” government provision: the location and design of a knowledge location is negotiated between actors (firms, entrepreneurs, developers, land owners, universities) within an urban region – and those have different locational preferences (and interests). Out of the relation between different types of knowledge base and actor’s preferences for urban settings, different types of knowledge locations emerge. Figure 4.4 illustrates this with a simple typology.

**Figure 4.1: Typology of knowledge locations: knowledge bases and urban location preferences**





The preferences of companies and workers primarily relying in analytical and synthetic knowledge bases (such as e.g. biotechnology or machinery engineering, respectively) are generally well-fulfilled in *science and technology parks*, typically located in quiet greenfield areas and limited urban ambience, but often concentrating laboratorial facilities, partner research institutes, and with good accessibility within the functional urban region.

The urban variant of science and technology parks, also for activities primarily relying on analytical and synthetic knowledge base are the *urban campuses & science quarters*. Such locations have similar characteristics, with the key difference of being well embedded in the urban fabric, often in (or in the proximity of) city centres. Frequently designed to cover up old industrial plots, they also thrive in activities related with science and engineering, concentrating not only research units and labs, but also offices and incubation space for related activities.

For activities primarily relying on symbolic knowledge (e.g. fashion, design, audiovisual, multimedia), but also with relevant synthetic components (e.g. ICTs) the *creative district* is the most frequent manifestation. The urban atmosphere and associated amenities is in the “DNA” of the creative district. As analyzed in chapter 2, creative districts focus on facilitating adequate working-living conditions for such types of industries (studios, shared workspaces) and often host educational organizations as well, but, contrarily to the typical science park model, they have an aesthetic and visual drive encompassing cultural facilities, architectural quality and heritage preservation.

However, knowledge locations with a strong focus on symbolic knowledge in greenfield locations are very rare types. To our knowledge, there is no evidence of such manifestation. In line with the theory underlying this typology, this has to do with the clear preferences of companies and residents/workers with regard to urban atmospheres and places with “identity” for their activities. This is not to say that activities and innovations primarily reliant on symbolic knowledge base cannot take place outside of the urban fabric. The cases of goods such as gourmet food, tourism products or luxury watches are some examples (Jeannerat and Crevoisier, 2011). However, the actors involved in such types of activities do not seem to show enough preference for a public policy *provision* such as a knowledge location (as we define it), which probably makes limited sense to their activities.

#### 4.4 Conclusion

This chapter started by framing the development of knowledge locations within a broader theory of urban and regional dynamics, in which the preferences of residents, firms and governments interact to shape urban development patterns (van den Berg, 1987). In line with this approach, it is possible to understand knowledge locations as a government *provision* to accommodate the changing preferences of residents (who are also workers) and firms, looking for welfare potentials in space. Thus, knowledge locations result from government action, but also from the other actor’s *self-organization* dynamics and preferences, which in turn respond to fundamental changes (e.g. technology revolution, globalization and the emergence – and consolidation – of the knowledge and informational economy).

In the face of such challenges, the chapter recognized a general “urban turn” in the development of knowledge locations, and explored reasons behind the persistence of locational diversity within urban regions (city fabric vs. greenfield zones). Again, the reason can be found in the combinations of actor’s preferences. Government preferences may influence the choice (land and redevelopment objectives, influence from similar developments by their international peers), but other actors’ living and working (heterogeneous) spatial preferences play a role influencing the “location of the location”. As different types of industries rely on different types of knowledge, their location requirements within functional urban areas can be typified; this chapter provided such a typology by combining different knowledge bases and location preferences of different actors: science and technology parks, urban campuses and science quarters and creative districts.

The study of knowledge locations in cities is, naturally, an on-going effort. After a period of relative stagnation, new research agendas are emerging to update and consolidate our understanding on such a popular local economic policy tool (van Winden et al., 2012; Phelps et al., 2012). Yet, as demonstrated in this chapter, the progress in this field can largely benefit from an integrative perspective that places knowledge locations within the dynamics of its cities and urban regions.

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## **Chapter 5: The role of comparative urban research in promoting sustainable growth, competitiveness, and social cohesion**

**Asta Manninen**

### **5.1 Introduction**

Participating in comparative urban research contributes significantly to an understanding of the dynamics and challenges, opportunities and diversity that explain or inform development in cities and their functional urban regions across time, countries and cultures. Comparative analyses of both current trends and developments facing cities, as well as comparative research on measures undertaken by various cities help city leadership and urban policy makers in decision making and drafting future strategies. Dealing with multiple aspects of sustainable development, growth, jobs and social cohesion requires a good information basis and extensive knowledge. In today's globalized world there is also a growing need to understand the interplay of regional and international developments. Comparative studies are attractive, also in mapping out transferability of knowledge and solutions found to be workable and effective in meeting specific needs or challenges of a city and its urban region. Typically, comparative research projects lay ground for further collaboration and exchange of knowledge and expertise between the participating cities and research institutes. The outcome of a comparative study is not merely a research report but also an operating and evolving network.

### **5.2 Important research themes and topics from the point of view of cities. The Case Helsinki.**

It is important to have timely and relevant data, statistics and research available on urban phenomena, especially on new issues heavily affecting cities and on emerging trends in the urban scene. In terms of access to new scientific research and knowledge on cities and their regions, cooperation with universities and research institutes is of crucial importance. The ideal situation is that your city is member of a comparative urban research project, which is composed of a consortium of cities and scientific research institute(s). From the point of view of getting access to comparative data and indicators, it is valuable that your city is member of international urban databases, e.g. the European Urban Audit database<sup>54</sup>. Examples of global databases are the OECD Metropolitan database<sup>55</sup> and the Global City Indicators Facility<sup>56</sup>. Important to note is that the issue of comparability of cities, urban regions and metropolitan areas are directly tied to the choice of the unit of analysis.

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<sup>54</sup> [www.urbanaudit.org](http://www.urbanaudit.org)

<sup>55</sup> <http://measuringurban.oecd.org/>

<sup>56</sup> [www.cityindicators.org](http://www.cityindicators.org)

The City of Helsinki has a tradition of setting up urban statistics and urban research programs every three years. These programmes are created in a dialogue with key customers and partners, coordinated by the Urban Facts department<sup>57</sup> and approved by the City Board. The main goal is on the one hand to increase information and knowledge about topics of priority to the city such as housing and environment, democracy and inclusion, welfare and services, urban culture, design and creativity, as well as economy, competitiveness, and the functionality of the city, and on the other hand to get knowledge and insight into new trends and challenges facing the city. Many of these topics prove to be of fundamental importance from time to time.

The research programme is also used to communicate needs and demands for scientific knowledge to universities and research institutes (see paragraph 3). New forward-looking scientific knowledge is much appreciated. Thirdly, the programme is expected to advance partnerships and cooperation between various actors and stakeholders and to support activities targeted at getting research findings turned into practice. From the point of view of a city, availability of and access to relevant and future-oriented information and knowledge contributes to better decision making and better life in terms of livable cities, competitiveness and sustainability.

Comprehensive and timely information is requested for example on population and demography, housing and services, and the economy. Population projections updated on an annual basis are requested by the city leadership and all departments. Projections are drawn up for the city, its sub-districts and also for the city region. A follow up of living and health conditions in the city and its neighborhoods and on the urban structure and environment are regularly asked for. Most importantly, there are fundamentally new information needs too. The transformation cities have undergone in terms of the economic base, industrial structure, the new importance of place, accessibility and connectivity, the importance of education and knowledge, and the rapid changes in the operating environment serve as examples. Among new issues challenging the cities energy and climate change are currently among the foremost. Though, let us not forget, economy remains a challenging topic on the research agenda.

Of course cities focus research also on factors explaining the innovative advantages of cities. In general, cities profit from having many firms and enterprises in different industries (specialization and diversity), which in turn

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57 A short history and description of the City of Helsinki Urban Facts' department is as follows. 2011 marks the 100th anniversary of urban statistics in Helsinki, as the City of Helsinki established a statistical office in 1911. This office has gradually been developed also to include urban research and other information activities. Today, the City of Helsinki Urban Facts ([www.hel.fi/tietokeskus](http://www.hel.fi/tietokeskus)) brings together in one institution urban statistics, urban research and the entire city archives. Today, a lot of emphasis is put on open data in Helsinki and the region. The new evolving open data service is Helsinki Region Infoshare ([www.hri.fi](http://www.hri.fi)). The City of Helsinki Urban Facts is also a well networked organisation with a long tradition of co-operation with universities and research institutes.

stimulates innovation and anticipates a less volatile production system. Comparative urban research is especially important in getting to know where your city stands, and in learning about change and new phenomena, and in learning how other cities respond to change and prepare for the future. The growth of the urban population and the dynamic nature of cities around the world give rise to interesting research questions and challenges. Key issues for modern cities range from public health, logistics, safety, governance, migration, economy and diversity to cultural dynamics, design and creativity.

A practical approach to understand the comprehensive and complex requirements for information and knowledge in running a city is to examine the strategy of the city. In the case of Helsinki we may look at the Helsinki City Strategy Programme 2013-2016 embracing the four-year term of the present City Council (see figure 5.1). The illustration of the Strategy Programme adopts the shape of the Helsinki coat of arms, i.e. that of a ship<sup>58</sup>. There are five key priority areas each comprising a number of objectives endorsed by the City Council. The City of Helsinki aims at providing well-being for all Helsinki residents with special attention to young people's well-being, a livable city, a well-functioning city, a balanced economy and good management, and improved democracy and civic participation. The implementation of this strategy programme raises various demands for solid information and new knowledge.

In 2012 Helsinki, together with the cities of Espoo, Vantaa, Kauniainen and Lahti was the World Design Capital. The great mission of World Design Capital Helsinki 2012 was to promote the use of design and find new contexts where design can be leveraged. World Design Capital Helsinki 2012, with its theme of *Open Helsinki – Embedding Design in Life*, has striven to fulfill this mission. During the year, design found its way into new environments within the public sector and also in the business or private sector. Citizen participation and new forms of collaboration were important objectives<sup>59</sup>. The programme of the year was composed of a total of 580 projects and 2,800 events. According to four awareness surveys carried out by City of Helsinki Urban Facts, a good 90 per cent of Helsinki, Espoo, Vantaa, Kauniainen and Lahti residents were aware that their home city was the World Design Capital 2012 host city. Two thirds of the residents said that they had followed what was being said and announced about World Design Capital. New shared spaces for local residents and visitors were created in all five cities. The surveys undertaken also showed that the message of design as a means of solving everyday problems had been put across well.

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<sup>58</sup> <http://www.hel.fi/hki/Helsinki/en/Etusivu>

<sup>59</sup> <http://wdchelsinki2012.fi/en>

Figure 5.1: Open Helsinki, open data



To achieve the goals of citizen participation and new forms of collaboration you need openness and accessibility. In this context open data plays a major role. The City of

Helsinki in cooperation with the cities of Espoo, Vantaa and Kauniainen and the development company Forum Virium Helsinki as well as the Finnish Innovation Fund Sitra set up the Helsinki Region Infoshare project in 2010, which launched the beta version of a new open data service [www.hri.fi](http://www.hri.fi) in 2011. The Ministry of Finance granted a municipal cooperation subsidy to the project. The idea of Helsinki Region Infoshare is that making public data accessible enhances citizens' knowledge and understanding of their region, municipality and neighborhood, which in turn improves the prerequisites of active citizenship. At present, there are a good 1,000 different data sets in the service, for example on living conditions, the economy, wellbeing, employment and mobility of the region. The European Commission awarded Helsinki Region Infoshare the European Prize for Innovation in Public Administration in June 2013<sup>60</sup>.

<sup>60</sup> [http://europa.eu/rapid/press-release\\_IP-13-505\\_en.htm](http://europa.eu/rapid/press-release_IP-13-505_en.htm)

### 5.3 How to make scientific knowledge available? Examples of cooperation in the field of urban research

How to make scientific knowledge available on issues of interest to the city? The next example is about cooperation in urban research bringing together universities, universities of applied sciences and the major cities in the Helsinki metropolitan region as well as government ministries. This started in 1998, when the City of Helsinki, the Ministry of Education and the University of Helsinki agreed to intensify their co-operation in the field of urban research. A first agreement was reached and this agreement generated six new professorships in urban research at the University of Helsinki for a term of five years. In 2003, this model was further extended. A new agreement was reached between the cities of Helsinki, Espoo, Vantaa and Lahti, the University of Helsinki, the Helsinki Technological University (nowadays the Aalto University<sup>61</sup>) and the Ministry of Education. According to the new agreement altogether nine professorships in urban research were created, seven professors accommodated at the University of Helsinki and two at Aalto University. The research fields were: European metropolitan planning, urban history, social policy, urban sociology, urban economics, urban ecology, urban ecosystem, urban technological systems, and urban geography.

This model of nine professorships in urban research has been further developed and enlarged. By 2010 the professorships in urban research were made permanent and part of the University of Helsinki and the University of Aalto. At present the cooperation in the field of urban research in the Helsinki metropolitan region is targeted at supporting the development of the metropolitan region and at bringing about new research findings important for the future of the region and for the metropolitan policy (see figure 5.2). The focus is on specific needs of the metropolitan region. Emphasis is placed also on international comparisons. In practice the cooperation in urban research is based on an agreement achieved between a large number of key stakeholders - the cities, universities and universities of applied sciences in the region and four ministries – with the aim of strengthening urban research and advancing the use of urban research findings and scientific knowledge. Each party of the agreement brings in and shares the experiences and knowledge of its international networks.

In *the Metropolitan Region Urban Research and Cooperation Programme 2011-2014*<sup>62</sup> the focus of urban research is on the specific needs of the metropolitan region. There are altogether four thematic areas requiring high quality urban research. These are:

- Living environment and urban structures
- Multiculturalism and immigration

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<sup>61</sup> The Aalto University was created in 2010 from the merger of three Finnish universities: The Helsinki School of Economics, Helsinki University of Technology and The University of Art and Design Helsinki.

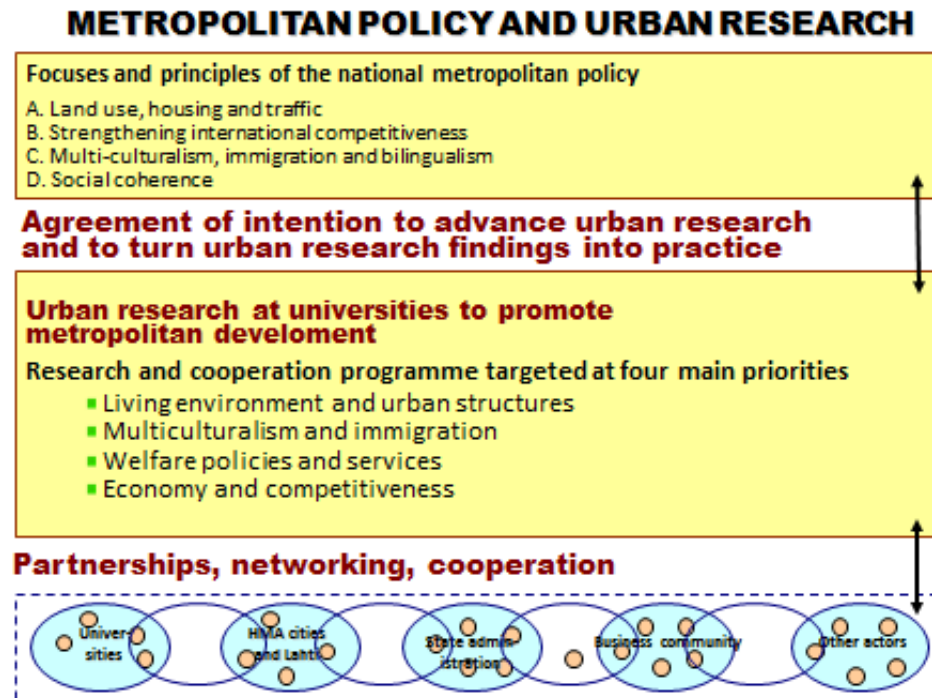
<sup>62</sup> <http://www.helsinki.fi/kaupunkitutkimus/english/index.htm>



- Welfare policies and services
- Economy and competitiveness

How to communicate research findings and turn them into practice is an important question dealt with in the course of the research programme and its various projects.

Figure 5.2: Metropolitan policy and urban research



### 5.4 Experiences of participating in a number of comparative urban research projects initiated and led by Euricur

The City of Helsinki Urban Facts has paid a lot of attention and efforts to develop and strengthen co-operation with universities and major cities at home and abroad, especially in Europe. The cooperation with Euricur (European Institute for Comparative Research at the Erasmus University Rotterdam) during the last 15 years is a successful example of international cooperation aiming at gaining new knowledge through scientific research.

Euricur researches and studies offer an interdisciplinary view on how cities function by combining theories and concepts from several fields. With this comprehensive approach the Euricur provides valuable knowledge for decision makers and their advisory staff, and for city planners and people engaged in city development. From the point of view of cities it is much

appreciated that Euricur research is communicated also in scientific papers and books with large dissemination.

Next an overview will be given on Euricur initiated international comparative research projects in which the City of Helsinki has participated and which have significantly contributed to new knowledge on matters of interest to the city. Among key questions of interest to the City of Helsinki and other participating cities during the last ten years you can recognize at least the following:

- How should cities respond to the evolving information and knowledge economy?
- What policies on the local, national and European level can be developed to promote sustainable urban development?
- What kind of place marketing strategies can a city set up and implement?
- Which urban clusters can you identify in your city and how can a city foster its growth?
- What is the impact of culture and events on the economic development of cities?
- What is the role of design in urban economic development?
- What policies and measures can a city develop and apply to improve safety and security?
- What strategies and measures to rely on in securing a healthy city?

Key messages from a sample of comparative urban research undertaken during the last years are presented in the following sections.

The most recent research project waiting to be published is “A world of events: how can cities anchor the advantage?”<sup>63</sup> Participating cities in this comparative research are: Dublin, Helsinki, Incheon, Rotterdam and Shanghai. One joint feature is that cities have increased their role as sites of consumption and leisure, and compete in attracting events and visitors. Examples are international conventions, industrial and trade fairs, races, art festivals, cinema festivals or fashion and design weeks. Tourism and culture have turned into important growth industries. A key question of the study is how can cities anchor the advantage of hosting various temporary events? In the case of Helsinki the research object in comparison is the Helsinki Festival, which is the largest arts festival in Finland, organized annually in late summer. The aim of the Helsinki Festival is to make art accessible for all. In 2012, the festival had more than 200,000 visitors. The programme line-up featured classical and world music, circus, dance, theatre, a children’s programme, cinema and a range of urban events. The Helsinki Festival operates under the auspices of the Helsinki Week Foundation, established by the City of Helsinki. Many urgent questions

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<sup>63</sup> Carvalho, L., Van Tuijl, E., and Van den Berg, L. (2012) A world of events: how can cities anchor the advantage?, Rotterdam: Euricur.

have received forward-looking answers during the course of the project, such as “What are the links between temporary events and permanent clusters of innovative activities?” and “How can urban and regional policies contribute to locally anchoring the economic and innovation benefits of temporary events?”

A topical Euricur research project finalized in 2010 was entitled “Developing Locations in the Knowledge Economy”. Many cities and regions have the ambition to promote their ‘knowledge economy’. It is generally recognized that knowledge has become maybe the most important source of growth and wealth in advanced economies. In Europe the ambition to develop economic excellence through knowledge and creativity has been stated in many Europe-wide strategies. A major policy instrument has been the creation of special locations, zones or parks, where knowledge based economic and research activities are concentrated. These locations, each of them unique in content and context, are assumed beneficial to creating new jobs and to the urban economic growth. In this research project Euricur has made a systematic comparative analysis of ‘locations for the knowledge economy’ in a number of cities including Dublin, Eindhoven, Helsinki, Incheon, Munich and San Sebastian. The research project generated answers and insights to questions such as “How important are ‘local’ networks (between actors at the location) vis-à-vis networks at wider geographical scales (regional, national, international)?”, “How to integrate ‘knowledge locations’ in the urban fabric?” and “How to frame the co-operation between the various actors (i.e. project developers, banks, local government, universities, ‘end users’) at the various stages of development of the location?”. Interesting cases of the comparative analysis were Barcelona’s @22 district and Helsinki’s Arabianranta area. Finally, as a location is never finished, there are still challenges for future development. It is important to pay attention to issues, such as improving the cultural supply and improve liveability in the area. The outcome of the research has been helpful in drafting the strategies and plans on improving competitiveness in Helsinki and the region.

The development of cross-border and cross-sector partnerships in eight European cities and regions was the research objective of the project ‘Empowering Metropolitan Regions through New Forms of Cooperation’<sup>64</sup> finalized in 2008. The aim was to gain insight into the factors of failure and success of the coalition-forming process by comparing various attempts in European city regions. Eight case studies were undertaken: 1) Brainport Eindhoven, 2) Centropo (Vienna), 3) New partnerships in the Helsinki Region; 4) Wonderful Copenhagen; 5) Regional planning in Munich, 6) the Noordrand project (Rotterdam), 7) the Better District Programme (Catalonia), 8) the Serralves Museum (Porto) and 9) Integrated transport policies in the Budapest region. To understand and be able to apply the results of the comparative research, a comprehensive analysis of the

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64 Otgaar, Alexander, Leo van den Berg, Jan van der Meer and Carolien Speller, Empowering Metropolitan Regions through New Forms of Cooperation, Ashgate, UK, 2008.

institutional environment of each of the nine cases was undertaken. The knowledge gained out of this comparative research has proved to be helpful in investigating possibilities of municipal mergers in Finland in 2012-2013.

The success in the effort to steer and control the development process depends crucially on the “organising capacity” of the urban government. The creation of strategic networks at intra-city and inter-city level and the formation of public-private partnerships in relation to development programs and projects are cornerstones of this approach. In addition, attention should be paid to spatial and socio-economic conditions.

Soft location factors have become more and more important for cities in order to be successful in getting knowledge intensive companies and skilled workers. Particularly, the quality of the urban living and residential working environment are of crucial importance for economic success. In this context, much attention is paid to safety. This is the origin to the Safe City research project<sup>65</sup> launched in 2005. Key questions researched were: What is the role of safety in urban development in the 21st century? What are economic, social and spatial consequences of the changed perception of urban safety and attractiveness? How do new (location and travel) considerations of citizens and companies affect economic development of different types of urban regions? Participating cities were Antwerp, Bari, Birmingham, Gera, Glasgow, Heerlen, Helsinki, Leeds, Prague, Rotterdam and The Hague.

A still topical research project what concerns the research objective was undertaken as early as in 2002, namely the “Student City” project<sup>66</sup>. The research focus was on students and economic development, students and urban infrastructure, students and housing, and students and globalization. The participating cities in the Student City research project were Birmingham, Eindhoven, Helsinki, Lille, Lyon, Munich, Rotterdam, Utrecht and Venice. The output of this piece of research has served as inspiration for later projects targeted at further improving the attractiveness of Helsinki as a student city, the most recent efforts being those carried out during 2012 when Helsinki was the World Design Capital.

Euricur has also actively researched urban policy design and content. Especially two studies are to be mentioned. In 2004 Euricur issued the National Urban Policies in the EU-15: an up-to-date overview of changes since about 1995<sup>67</sup>. A more or less similar study surveying and assessing national urban policies by the same editors was carried out in 1997 (and published in 1998<sup>68</sup>). The mapping and research on urban policies across

<sup>65</sup> Berg, Leo van den, Peter M.J. Pol, Giuliano Mingardo and Carolien J.M. Speller, (2006), *The Safe City. Safety and Urban Development in European Cities*, Ashgate, UK.

<sup>66</sup> Leo van den Berg and Antonio Paolo Russo (2004), *The Student City. Strategic Planning for Students' Communities in EU Cities*, Ashgate, UK.

<sup>67</sup> Berg, Leo van den, Erik Braun and Jan van der Meer (2007), *National Policy Responses to Urban Challenges in Europe*, Ashgate, UK.

<sup>68</sup> Berg, Leo van den, Erik Braun and Jan van der Meer (1998), *National Urban Policies in the European Union*, Ashgate, UK.

Europe were guided by three main questions: 1) What do national authorities consider to be major issues for a desired development of their major cities? 2) What important changes have taken place since 1995 in national policy responses to cope with major issues in urban development? 3) What role is attributed to European policy with respect to urban development and policy making?

The Finnish contribution for both studies was delivered by Eero Holstila, Director of Economic Development, the City of Helsinki. He brought about especially two national urban policy programmes, namely the Centres of Expertise Programme (launched in 1994) and the Regional Centres Programme (launched in 2001). The Centres of Expertise Programme was based on the cooperation between universities, business and public authorities according to the Triple Helix model. The programme was based on the conviction that cities are the engines of national economy and growth. The programme started in the Helsinki Region and was managed by the development company Culminatium Ltd, owned by 33 stakeholders representing research and science, private enterprises and public authorities. The programme proved to be successful and generated new jobs, which were urgently required after the big recession experienced in early 90's. Thus the Centres of Expertise Programme was introduced also to other large cities in Finland. The aim of the new regional development programme launched in 2001, the Regional Centres Programme, was to make all regional centres competitive no matter of their location and preconditions. The Helsinki Region was explicitly not included in this regional development policy.

These research projects of 1997 and 2004 of Euricur offer together a unique source of information for European, national, regional and local authorities and for all others interested in cities and their development, taking into account an operating environment that is becoming more and more complex and competitive. The research and documentation on *urban policy design and content* have proved to be of great importance to cities, the local level and the national level. The research delivers theory and practices from a good number of countries and cities. Hopefully this will encourage cities, universities, students and citizens to continue contributing to design of an urban policy workable at city, national and EU -level.

The Eurocities Working Group on Urban Research, especially its activities in 2001-2007, serve as a final example to highlight the fruitful cooperation between the City of Helsinki Urban Facts (chair of the Working Group) and Euricur (vice-chair of the Working Group) and Eurocities and its member cities and affiliated universities. The objectives of the Working Group (WG) were:

- To establish closer cooperation between city administrations and research institutes on urban issues,

- To promote better dissemination of research results and knowledge exchange (e.g. URBAN MATRIX<sup>69</sup> and EUKN<sup>70</sup>),
- To monitor quality of life in cities through the collection and analysis of available urban data (Urban Statistics Departments of cities and regions; the European Commission Urban Audit; the European Commission Espon data; UN data; OECD data; World Bank data and so forth);
- To contribute to the development of an urban research agenda for the EU (lobby for urban research in FP7), and
- To contribute to horizontal policy activities within the EUROCITIES network (e.g. the Lisbon Working Group).

The WG serves as an example of what can be achieved through voluntary target-driven cooperation between cities, universities and research institutes.

## 5.5 Conclusions and perspectives

The cooperation with Euricur in the field of comparative urban research has been rewarding. Firstly, the City of Helsinki has had the opportunity to participate in topical research projects together with a number of interesting cities. There has been a true possibility for benchmarking and learning from each other as the research projects have been addressing ongoing and future challenges facing the cities. The outcome of the comparative research projects has not merely been a research report but also an operating and evolving network with further activities.

The research method and principles applied by Euricur in cooperation with the participating cities are greatly appreciated. The methodology follows academic standards, is multidisciplinary, pays much attention to the definition of the research problem and key questions, selects and undertakes case studies in each participating city and organizes discussions and opportunities for interaction during the course of the research process. The international comparative studies and research are made open and understandable to the end-users from the first beginning. Another asset of the method is the availability of a comprehensive desktop research report on the topic undertaken in the very beginning of each project. An international seminar or conference is usually organized for presentation of the final outcome. This helps getting attention to major urban issues and serves actually as support also to city marketing.

Euricur research offers an independent, scientific and outside interdisciplinary view on how cities function. Thanks to this profound approach the Euricur research and comparative studies provide valuable knowledge for decision makers and their advisory staff, and for city planners and people engaged in city development. From the point of view of

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<sup>69</sup> <http://www.eurocities.eu/eurocities/activities/projects/URBAN-MATRIX-Targeted-Knowledge-Exchange-on-Urban-Sustainability>.

<sup>70</sup> <http://www.eukn.org/>

cities it is much appreciated that Euricur research is communicated also in scientific papers and books with large dissemination. Hopefully these dissemination channels are successful in getting researchers interested in urban issues and thus helping advance high quality urban research.

We may also recognize some impacts of Euricur research on policies, engagement and actions in cities. In the case of Helsinki, we can for example see connections between the Euricur *Student City project of 2002* and later engagement and actions in this broad topic area such as measures on attracting international students and experts to Helsinki Metropolitan Area, opening up career opportunities for highly skilled employees, and development of a service concept that supports the settling of international highly skilled employees and companies. Another example is found in the field of the knowledge economy and creative industries. Euricur research has brought about a good sample of cases and new ideas about how the knowledge economy works. The City of Helsinki has done a lot in terms of economic strategies and measures in order to join forces for promoting new jobs in knowledge intensive and creative branches. Creative industries are considered to deliver higher than average growth and job creation. In addition, they are thought of as having a crucial role in fostering cultural diversity. Attention is also paid to the importance of events for the economy and livability of the city.

It is evident that cities provide diversity and a favorable environment for businesses to grow and expand, as well as fostering research and development, innovation and competitiveness. At the same time, the urban environment provides a concentration of major economic, environmental, social and governance challenges. These are examples of key interest areas requiring high quality comparative urban research also in the future.

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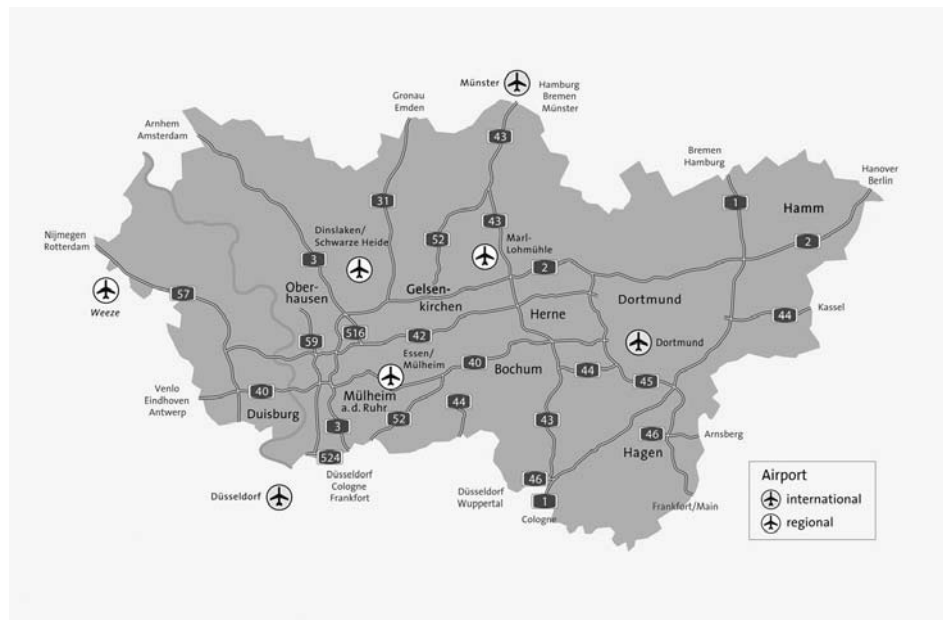
## Part 2 Regional Metropolitan Cities

### Chapter 6: Ruhrgebietslied

Klaus R. Kunzmann

The following Ruhrgebietslied is no epic of hatred and deceit, of murder and revenge, of human weaknesses, which dominate the world famous Nibelungenlied. It is no history of territorial requirements, external rulers, but an attempt to describe and analyze the never ending efforts to structural change in the Ruhr, the old industrial region between Sonsbeck and Hamm, between Haltern am See and Brekerfeld. Concluding the Ruhrgebietslied an additional strophe will be added, suggesting Three pathways to the future of the region.

**Map 6.1: Ruhrgebiet**



#### The evolution of strategic regional planning in the Ruhr

It was 100 years ago that Robert Schmidt in a memorandum concerning principles for the design of a *General-Siedlungsplan* advocated to guide the spatial development of the cities in the Ruhr by a joint regional plan. He advocated a regional master plan, which would not follow the locational rationales of the influential regional mining companies and the Ruhr barons, but was the outcome of political decisions by city mayors and city councils (Schmidt, 1912/2009; Benedikt/Willamowski, 2000). He had been inspired by the Greater Berlin Association, established in 1912 and soon disbanded after the war in 1920, when the “new” consolidated city of Berlin emerged. Robert Schmidt wished to follow two earlier initiatives, established in 1899, which considered the region to be a functional whole, the *Ruhrtalesperrenverband* securing the water supply in the Ruhr, and the

*Emschergenossenschaft*, a cooperative agency targeting the prevention of floods and epidemics, by managing the immense regional industrial and household sewage load. Until today, both semi-public institutions are important and influential actors of regional cooperation.

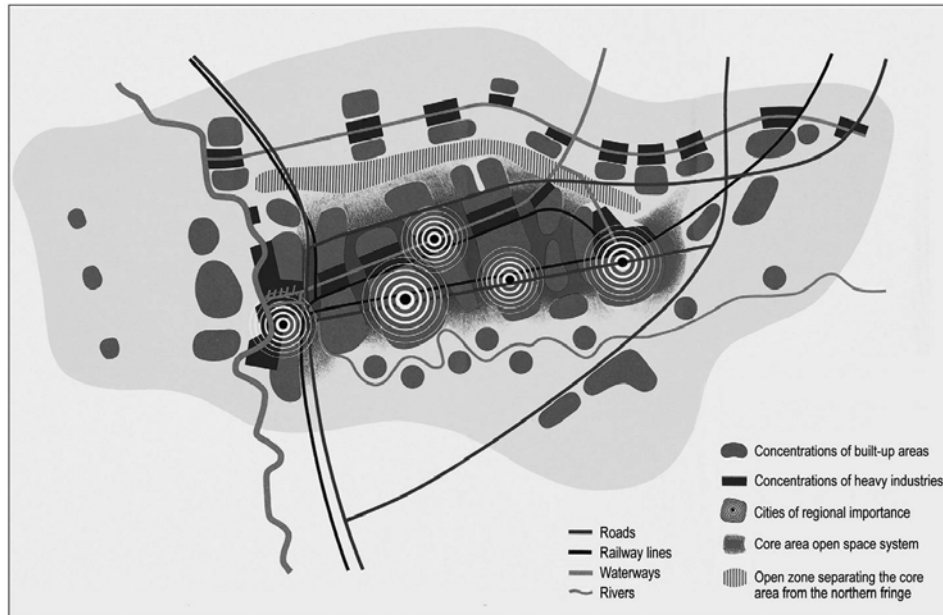
The plan advocated by Robert Schmidt, the first regional plan in the history of spatial planning in Germany, has become a much-praised myth. Regrettably, today there is not much left of the sophisticated “ordering hand” and even less so of the visionary spirit of Robert Schmidt, which has found so much attention and recognition beyond the borders of Germany. The major feature of the plan was a number of North South green corridors. These much-praised green corridors of the Ruhr have neatly separated the major cities. They were used for agricultural purposes and power transmission lines, but did not offer attractive recreational space for residents in the adjacent urban neighborhoods. Much later, the *IBA Emscher Park* initiative opened a window of opportunity, turned the orientation and developed new green corridors linking the cities in the Ruhr in east-west direction (KVR, 1995; Ganser, 1999). This had been done incrementally without a politically legitimized comprehensive spatial concept.

At the beginning of the 21st Century the spatial structure of the large polycentric urban landscape of the Ruhr is characterized by a few large centres, and hundreds of small cores (Reicher et al., 2011). While the major city centres (Bochum, Dortmund, Duisburg and Essen) compete for investors and investments, business, skilled labor and reputation, the many small and medium-sized cities strive to overcome the enormous challenges of the gradual decline of the coal and steel industries, industrial transformation and structural change. Only one steel works in Duisburg is still producing steel in the region. In 2018 heavily subsidized coal mining will come to an end, following a decision by the Federal Government to end the generous subsidies to coal mining.

With the decline of traditional industries, the social and economic disparities between the affluent neighborhoods in the north of the Ruhr and those in the south are growing enormously. Neither regional planning, in North Rhine-Westphalia, called *Gebietsentwicklungsplanung*, nor the renowned IBA Emscher Park, an initiative of the state government to re-imagine the most deprived part of the Ruhr, the Emscher region, could stop the processes of spatial, economic and social decline (Kunzmann, 2004). Although regional planning has quite successfully stopped urban sprawl on the edges of the Ruhr, it could unfold only limited strategic and future-oriented regional development. For political reasons, the regional planners probably should not pro-actively guide and intervene into market-led economic development in the Ruhr. Over the years *Landesentwicklungsplanung* (spatial planning of the Land), the planning and decision-making tier above regional planning in North Rhine-Westphalia, which had received much attention for its strategic planning approach in the '60s, has gradually withdrawn, too, from intervening into spatial development of the region (Kunzmann 2001). Now, new efforts to

regional planning in the Ruhr are undertaken. The *Regionalverband Ruhr (RVR)*, the regional association of towns and counties in the region, - recently re-legitimized to do regional planning - has started a new approach to develop a spatial strategy, a strategic master plan for the spatially, economically and socially fragmented polycentric city region.

**Map 6.2: The spatial structure of the Ruhr in the 1966 Regional Development Plan**



The spatial structure of the Ruhr in the 1966 regional development plan **Source:** Gebietsentwicklungsplan (GEP) 1966

More than 40 years ago, in 1969, the last regional plan for the whole region had been launched. Satisfying the demands of the regional industries and following the post-war paradigm of the *“autogerechte Stadt”* (car oriented city), the plan has aimed to prepare the region for unlimited motorcar mobility and promoted a grid of motorways, without which the region would have long since collapsed. This motorway network was conceived as the infrastructural backbone for a polycentric region, defining a hierarchy of roads and urban centres and sub-centres. Apart from a few un-built linkages in Essen and Dortmund, blocked by civic action groups, this motorway network has been implemented gradually. The green corridors were easy routes for these highways, also for regional power transmission lines. In contrast, the public rail transport network was much neglected. On the contrary, with little foresight, no awareness of regional requirements, and with generous help of the state government the large cities preferred to build their own monocentric metro-networks, rather than to optimize existing tram lines and to strengthen inter-communal, regional links. They did it to promote their inner city shopping areas and meet the expectations and requirements of local businesses. Similarly the federal

German Railways saw no reason to connect the gradually declining cities along the Emscher in the industrial heart of the region (see Ache et al., 1992. Ache/Kunzmann, 1992). In retrospect, it would have been the ideal route for trans-European high-speed trains, which might have brought new investment to newly developed hubs north of the Ruhr. But local interests of the mining industry and influential logistics companies did not support such developments.

A first very innovative attempt to structure the polycentric urban landscape of the Ruhr, was a strategy of the state government of North Rhine-Westphalia carried out together with the *Siedlungsverband Ruhrkohlenbezirk*, the regional authority of the Ruhr at that time and local governments to promote along existing regional rail transit lines new high density *Siedlungsschwerpunkte* (focal points of urban development). This was exactly what the region needed. However, the forward-looking strategy was soon abandoned after pilot projects to build high -density housing quarters around transit stops did not meet the expectations. They failed because they reflected the zeitgeist of architects and developers, and local decision-makers, committed to local government owned housing corporations, rather than the requirements and expectations of the residents. They became transit locations and ended up as tenement housing for low-income and marginalized households. One day, due to the increasing shortage of affordable housing this concept will be given a second chance with more political support, with better access to public transport, with an intelligent functional mix, a more human architecture, better access to public spaces and green corridors and, last but not least, with much more efficient neighbourhood management.

In recent years, apart from a brief period of nation-wide media coverage during the Capital-of-Culture Year 2010, the Ruhr is continuously a target of negative media headlines. The national press reports continuously - not always quite fair - about the visible manifestations of physical and social decline of the Ruhr, comparing the region with obsolete brownfield regions in former Socialist East Germany. It is true, compared with the old industrial regions in eastern Germany the Ruhr is hardly doing better, whether in terms of the number of highly educated citizens, or the share of skilled cosmopolitan migrants. Respective figures show that the polycentric city region does not attract the much-vaunted internationally mobile creative class. The gap between the Ruhr and the economically flourishing regions in the south of Germany is continuously widening. One more fact is hampering the Ruhr. Given that the former working class region did not nurture a quality regional newspaper that is read outside the Ruhr, success stories of structural change in the Ruhr area did hardly reach an informed readership outside the region. Hence the outside image of the region remains diffuse. Marketing efforts of the Regional Association Ruhr to attract foreign investors and sell the region at international real estate exhibitions and tourism fairs as a European „metropolis“, it seems, do not impress. The negative image of the region as a region, which is fragmented and has no attractive city centres, a region, which is heavily burdened by

structural change, does not show cosmopolitan urbanity, is too strong. Obviously, this image, the fact that the region is a stronghold of the social-democratic party and influential unions, defending the “*Mitbestimmung*” (codetermination) in boards of large coal and steel corporations, and comparably high wages and salaries do not encourage foreign investors to invest in the region, although the subjective quality of life in the Ruhr is very high.

The universities in the region are modern and future-oriented. They deliver highly qualified engineers, economists, computer scientists and physicians from lawyers, planners, logistics experts and social workers, required in the region, but it lacks the jobs to employ the graduates upon successful completion of their studies. Housing for „talents“, scientists and students, in turn, is not a problem. For many international students, the Ruhr, however, is not appealing enough, not because the training programs are not attractive, but because the region does not have the international image of other German cities, such as Berlin, Munich and Heidelberg. The language is still a barrier and programs to promote foreign start-ups are missing. In addition, the welcoming culture in the Ruhr is not well developed.

Whether new efforts to strategic regional planning with broad regional participation, and an urban planning competition, - both have been initiated recently-will change regional economic and physical conditions, has to be doubted. The new strategic plan will presumably consolidate the fragmented polycentric spatial structure and secure the Emscher Landscape Park. It will postulate a more visible space-functional division of labor and the qualitative expansion of public transportation. Perhaps it will certainly propose the development of new, functional mixed neighborhoods. Though all such recommendations will remain on paper, unless strong leadership in the region will take action. And strong leadership has always been a problem in the Ruhr.

## 6.1 Visions for the Ruhr

The lack of coherent regional policies in the Ruhr has always been a reason to launch visions for another “post-industrial” future. Though all these visions were usually individual brainchilds, interest-based concepts of regional institutions or academic musings, as for example my own ideas for a *Ruhrstadt*. 20 years ago I was an ardent advocate of a single „*Ruhrstadt*“ governing 5 million residents in a region benefitting from its excellent European accessibility (Kunzmann, 1987, 1989a, 1989b, 2008, 2009; IRPUD, 2002). What I had in mind was a kind of Greater London Council along the lines of good governance. In retrospect all these visions were unrealistic, idealistic and politically naïve. Today I have my doubts whether a single administration or even an elected joint government could handle the manifold economic and social challenges of the region, which is so much burdened by the legacies of its heavy industrial past. The pragmatism of the people and its political leaders is a strength of the Ruhr, but it is a weakness too, as the regional stakeholders are not open for visions, which

go beyond mainstream recipes. Developing new and original visions to address the challenges and gradually implementing such visions, requires joint action and a strong political will. One day in the future, perhaps, there is some kind of a consolidated regional management. Such an institution will rather emerge at the end of a long process of regional cooperation, not at its beginning.

This applies even more so to another utopian vision, a city region RhineRuhr. Together with mayor of Duisburg, I advocated even the proclamation of a RhineRuhr Metropolis (Krings/Kunzmann, 1996, Knapp et al., 2004, BBR, 2008).

In 1995, a concept of establishing European metropolitan regions had been invented by the standing conference of planning ministers of the 16 member states of Federal Germany. The aim was, to improve the intraregional cooperation of local governments in polycentric urban regions, and to make German city regions more competitive at the European level. The RhineRuhr agglomeration with its 12 million inhabitants (similar to Paris or London) was obviously a prime candidate. It would have united the Ruhr, the city regions of Dusseldorf and Cologne/Bonn and the Wuppertal/Solingen/Remscheid urban triangle. Very quickly, however, this bold vision proved to be a miscarriage. It could neither find political support from below or from above. The political resistance from the big cities along the Rhine, and from East Westphalia and the Sauerland were too big to actually see this mega-region as a unit and a uniform territory of political action. In particular, the state government of North Rhine Westphalia would have never delegated development power to such a mega-region and being left to govern the remaining predominantly rural territories with a population of 6 million.

However, another vision proved to be very successful. At the end of the last decade of the 20th century Christoph Zöpel, a young socio-democratic state minister of urban planning, inspired by his advisor Karl Ganser, launched an international building exhibition for the most disadvantaged part of the Ruhr, the Emscher region. International building exhibitions have a century long tradition in Germany. They are not really exhibitions of buildings, but a successful instrument to demonstrate new approaches to urban development. The aim of the IBA Emscher Park was to give the Ruhr a new image and a new identity, preserve the existing industrial heritage of the industrial region and revitalize the industrial premises, such as obsolete steel works or coal mines, for other, future oriented use. The idea of the strategy and its success have been repeatedly described and supported (IBA, 1999; Grohé/Kunzmann, 1999; Kunzmann, 2004), but occasionally also criticized „from below“ (see for example Müller/Herrmann 1999). The IBA Emscher Park has not been a comprehensive regional development strategy, as it has often been perceived from enthusiastic outside planning and architectural communities. The small purposely established executing IBA agency was not legitimized to cover important policy fields such as transport, education or local economic development. Nevertheless the ten-year IBA Emscher Park initiative has become a unique showcase of the

Ruhr. Its passionate mission of conserving and creatively using the industrial heritage, its successful development of a regional landscape park, and the ambitious re-naturalization of the Emscher River has been a magnet for professional visitors from around the world to the region. It has received worldwide attention and imitation (Reicher/Niemann/Uttke, 2011; Kunzmann, 2011). It has been crucial to win the nomination of the European cultural-city-2010, but many of its ideas and principles were ignored thereafter, once the financial carrots of the state government were vanishing. Given the political culture in the Ruhr, this is not surprising.

The IBA Emscher Park, however, has not been the only effort to prepare the region for a better future. The immense challenges of structural change in the Ruhr prompted constantly the development of new future-oriented visions and related concepts (KVR, 1995). Though, after receiving short-lived media coverage and attention, they disappeared soon and were stored in the archives of the visionaries and initiators, though they may have nurtured to regional discourse. From the abundance of visions and concepts during the last two decades, a few recent initiatives are briefly presented now.

- In 2002, with much architectural fervor, the Dutch firm MVRDV has carried out a study on the future of the Ruhr which has been commissioned by the state government. But the architect planners from the Netherlands were too far away from the political reality of the Rhine and Ruhr regions. Their study, which relied very much on images and urban symbolism and rhetoric, was shown in an impressive exhibition and documented as a bilingual German and English catalogue. It disappeared quickly in the archives and is more or less forgotten (MVRDV, 2002).
- More successful has been another initiative. As part of a research project of the Federal Ministry of Education and Research of the Federal Republic of Germany, the cities of Bochum, Dortmund, Duisburg, Essen, Gelsenkirchen, later followed by three other cities in the Ruhr, Bottrop, Hamm and Hagen, have joined to reflect on the future of the region in 2030. Together with the Faculty of Spatial Planning of the University of Dortmund, and in collaboration with many local stakeholders in the region, produced numerous ideas on good governance in the Ruhr in 2030 (Davy 2003). The explicit aim of the project was to overcome the notorious parochialism of individual cities, governed like feudal dukedoms. The contract that was signed by the cities at the end of the project was an important step to build-up more inter-communal trust.
- Assigning the Ruhr the status of a special economic zone with all the privileges investors and taxpayers would expect from such zone had been the unrealistic proposal of the liberal party FDP in NRW in 2005. The proposal was to accelerate structural change, reduce trade tax rates of cities and towns, make a comprehensive concept to zone more industrial land (on virgin land), and accelerate the legal planning process to speed-up planning permissions and

building permits. Understandingly, this traditional neo-liberal and rather backward- than forward-looking suggestion was not adopted by the state parliament of North Rhine-Westphalia. There is abundant space for industrial and commercial space in the region, and a free zone label would have further ruined the image of the Ruhr (see Kunzmann, 2005).

- In 2006 a number of the cities in the Ruhr launched a pragmatic initiative from below, a document they called “master plan”. The plan, rather a compilation of realized and planned urban projects, than a strategic master plan showed the “strengths and qualities” of the participating cities. This document, and an expanded follow-up version of 2008, was certainly a big step forward. Though the impressive catalogue of projects did not show any visionary spirit, it demonstrated a new the willingness of the cities to join forces and to cooperate in land use development matters and challenges (Städtereion Ruhr, 2008, 2010).
- In 2008, the influential *Initiativkreis Ruhrgebiet (IR)*, a personal club of CEOs of key economic players in the region commissioned a concept for the future of the Ruhr to a team of business consultants. This concept *Future Ruhr 2030* contained all the ingredients of state-of-the art economic development strategies. It did not receive much public publicity. The unrealistic proposal to build a new international airport west of Cologne to bring the Ruhr forward could not really impress political arenas in the Ruhr (IR, 2008).
- To everyone's surprise, and against 15 prominent candidates from Germany, such as Augsburg or Potsdam, the Ruhr region had won the competition for the assignment of being the European Capital of Culture 2010. The success nurtured the vision of a region, where culture and creativity are driving forces of structural change. The broad programme of the capital-of-culture year was very ambitious and spatially balanced to include all cities and counties in the region. All municipalities of the region participated in and contributed to the much-covered media event. All significant local cultural initiatives and projects were involved in the programme. It soon turned out that all the state-subsidized cultural activities in the region during the event rather satisfied the expectations of the regional artistry and the cultural consumption requirements of the educated regional middle class, than trigger off new creative jobs or attract international investors. Not surprisingly, after the end of the year-long “cultural party” a regional hangover could not be avoided (RUHR, 2010).
- A Charta Ruhr, a charter for the Ruhr, launched on the occasion of the capital-of-culture year, in 2010 by members of the German Academy for Urban and Regional Planning found little resonance in the political arenas, in the media, and among the regional society. The recommendations of the charter were not based on a critical analysis of the challenges of the region. Inspired by the renowned



architectural Charter of Athens, the Ruhr Charter, the authors of the ambitious collection of statements, just reflected well-worded zeitgeist jargon. It did not show innovative pathways into a more optimistic future of the region (Fehlemann et al., 2010).

- Fully funded by the private sector Albert Speer & Partner, a renowned German planning consultant, presented an analysis of the state of the region and their "marginalized" sub-regions and offered to produce *Ruhrplan 21*, a master plan for the Ruhr, a future oriented vision for the region. The proposal, made in 2009, however, did not receive much enthusiasm among the regional stakeholders. The concept outline followed international mainstream paradigms, suggested to concentrate future public and private investment in offices, commercial development and cultural investment in four city cores only. The concept proposed to deliberately plan for a kind of intelligent spatial shrinking, a strategy the socio-democratic decision-makers in the state and in the Ruhr region could certainly not accept, as it would have created winners and losers in the region (AS&P 2009).
- A follow-up project of the capital-of-culture-year has been an impressive cultural master plan for the Ruhr Metropolis coordinated by the Regionalverband Ruhrgebiet. This strategy aimed to prepare the ground for a better coordination of the manifold cultural initiatives of 53 cities in the region. It proposed five strategic action areas: turn the region into a single cultural metropolis, develop cultural competence of international importance, strengthen regional creative milieus, cultivate a new urbanity, and encourage inter-communal cultural cooperation. The heavyweight document is impressive. What will and can be implemented in the end remains to be seen. Though forced by considerable cuts of local cultural budgets, first signs of a closer cooperation among the cultural departments of the cities can already be observed (RVR 2011, 2012).
- At least on paper, the Concept *Ruhr 2010* another initiative of the *Regionalverband Ruhr* is an impressive joint strategy of 45 cities and counties in the region to promote sustainable urban and regional development. However, this concept is not so much an innovative and strategic vision for the future of the Ruhr as a comprehensive inventory of all on-going initiatives and projects in the region. Again the mere existence of such a document is already a positive sign of intensified inter-communal cooperation (WMR, 2008, 2010).
- The most recent project to innovate the Ruhr is Innovation City Ruhr, another initiative of the Initiativkreis Ruhrgebiet (IR) to develop a selected city as an energetic demonstration project. The aim of the initiative is to reduce the local energy consumption by more than 50% until the year 2020. The competitive bid went to the city of Bottrop, one of the economically most disadvantaged cities in

the Ruhr. If successful, the project could serve as a model for other districts in the Ruhr and beyond. It remains to be seen whether the proposed approach, focusing mainly on measures that improve the energy efficiency of existing housing, will find broad support of private house owners and residents or whether the state-subsidized project rather aims to support regional green industries (ICR, 2012).

Besides all these visions, regional opinion leaders have published numerous regional marketing books repudiating the critics and praising the many achievements made to successfully manage regional structural change. (Bongert/Cemetery, 2006; Peck, 2009; Engel et al., 2011).

*Viel erreicht, wenig gewonnen* (Much achieved, little gained) is the title of a recent assessment of regional developments in the Ruhr (Bogumil 2012). It describes the many undisputed successful public and private achievements, though deplores the obvious mismatch between expectations and visible economic and social achievements.

The many approaches to a better and sustainable future of the Ruhr show the diversity of spatial visions, strategies or concepts that have been developed in more recent decades. They demonstrate the constant efforts of institutions and individuals to accelerate structural change, reduce structural or spatial deficits, and prepare grounds for an economically successful and sustainable future of the Ruhr. The visions have no end. In 2014, a new vision for the Ruhr will be presented. The RVR has initiated an urban design competition Ruhr 2030 to gain new innovative ideas for future spatial development of the region. This is done as all the many efforts of the Regionalverband Ruhr (RVR) in the past to promote the Metropole Ruhr have not been quite successful to promote the self-proclaimed metropolitan region internationally. It is hoped that the outcome of the competition, mainly a set of spatial images, as recently produced for the metropolitan region of Paris, will guide future spatial policies in the Ruhr. Undoubtedly the competition will attract the interest of the community and, for a brief instance, the attention of media. Whether it will have an impact on local policies and investment strategies will have to be seen.

## **6.2 Ruhr: Disappointed hopes, missed opportunities**

Already in the beginning of the 1960s of the last century it became clear that the coal industry would gradually lose its central importance for the economy of the Ruhr. Since then there have been numerous state dominated initiatives and strategies to mitigate the inevitable structural change and identify new development pathways for the region. The most far-sighted and certainly most successful initiative was the establishment of universities in the region: first, universities in Bochum, Dortmund, Duisburg, Essen and Hagen, later, the state universities of applied sciences in Gelsenkirchen, Hamm, Iserlohn and Mülheim/Oberhausen. A private university was established in Witten. These institutions have opened new prospects for the region, which for many reasons did not have a proper university to provide qualified labor for managing the structural change until the early 1960s. Many other state policy initiatives and programs were

rather hidden subsidies to large companies in the region, rather cementing the existing industrial regional economy than opening new innovative pathways. Abundant subsidies have rather delayed or even prevented regional structural change, instead of promoting the region as a competitive future oriented technology region. In addition, the dearth of local and regional entrepreneurial spirit has been a serious constraint for innovative development.

Over the past decades state and regional industrial policies in the Ruhr have neglected and missed many opportunities. Endogenous potentials that combine regional competence with expertise in new materials and new IC technologies with could profile the region to the outside world were not exploited. Only two endogenous competences and strengths of the Ruhr found continuous support, the expertise in logistics and in health. The logistics expertise is recognized worldwide and is actively promoted, but has not yet made the transition to green, environmentally responsible and resource-efficient logistics. The health competence, the outcome of decades of experience in dealing with accidents in coalmines and steel factories is high, but has never attracted international companies, developing innovative medical technology and marketing such products worldwide. The population in the Ruhr benefitted from the high quality of medical institutions, but advanced medical technologies were developed elsewhere. Other options for benefitting from century long regional competence for coping with the challenges of structural change and profiling the region internationally were not used, or neglected. The inward perspective dominated, and outbound international perspectives were neglected. Those, who wished to buy coal and steel, came to the Ruhr. The industries were never really forced to sell coal on international markets. Moreover, most high quality coal was just burnt to produce electrical energy. One more reason for inward looking attitudes of the regional society is the fact that the Ruhr had never published a quality regional newspaper. Hence success stories from the region were never read outside the Ruhr. Radio and television channels did not do much better.

What could have been done? What kind of competences of the region could have been better used to maintain the technology image of the Ruhr? Five such neglected competences are briefly sketched below. They are, surprisingly, the competence of managing coal mining, the environmental expertise, the sports competence, the integration expertise, and the competence in managing vocational training.

**Competence field coal:** From an international perspective it would have made much sense to turn the last pit in the Ruhr into an international mining university of applied sciences, different from what mining universities in Germany, such as Aachen and Clausthal-Zellerfeld, usually do. While still being in operation, this university could have educated and trained specialists from around the world how to exploit coal environmentally friendly and safe, how to manage coal mines and a mining enterprises, how to educate safety engineers, soil and groundwater specialists and landscape re-cultivation architects, how to co-operate and communicate

with local governments and environmental action groups, or even how to organize affordable housing and schools for miners and their families. This university could have perfectly bridged theory and practice, offered undergraduate, graduate and postgraduate education, and carried out internationally oriented post-doc research. With the closure of the last pit in the Ruhr, and without the day-to-day experience of exploiting coal under difficult geological conditions, and managing a pit, the holistic regional knowledge accumulated over more than 100 years will gradually disappear. That such education and applied research would have to be offered in other languages than German would perhaps have probably been the biggest obstacle. The university, which could have satellite programmes in China and Brazil, South Africa, Siberia and Australia, everywhere where over the next 50 years mining is still an important regional economic sector. The now defunct Ruhr coal corporation (RAG) would have been an ideal sponsor of such a university. The last mine in the Ruhr would not be turned in a mining museum, but into the most modern mine of its kind, which is operated like a high-tech research centre or like the nuclear research reactor in Garching near Munich. In addition to selling the coal, the revenues from the sale of competences and from the acquisition of international research funds would have covered the operation costs. Clearly, such a venture would have attracted the best mining engineers to the Ruhr thus raising the technological image of the region.

**Competence field environment:** For decades the Ruhr has been the notorious prototype of a highly polluted region. Meanwhile the quality of the environment has considerably improved. Today the sky above the Ruhr is blue again. With substantial state government subsidies to regional coal, steel and chemical industries, and controlled by countless environmental regulations at the state level, supported by regulations at higher five tiers of planning and decision-making, the environment has been gradually improved. Much experience was accumulated when applying new environmentally friendly technologies, controlling the use of land and water, and decontaminating huge areas of polluted soil. Today the Ruhr is greener and cleaner than many other industrialized regions abroad. Liveability in the Ruhr is as good or even better than in other, less industrialized city regions in Germany. Foreign visitors, who compare the Ruhr with other old industrial areas in Belgium, Britain, the United States, or Eastern Europe, are much impressed, when touring around the region. This obvious success story of regional structural change, however, is not pro-actively used to support and profile the regional economy, and to globally export competence and expertise. Recent initiatives, such as the *Innovation City Ruhr* or policies to promote green logistics are rather inward than outward oriented, and they come far too late to be used for regional marketing, for building-up specialized clusters and for attracting investors.

**Competence field sports:** The Ruhr is always seen to be a region where the sports, not just football, are an essential regional asset. Many important German sporting events in Germany are held in the region. Despite the considerable economic importance of sports, regional economic

policies have never been initiated in the Ruhr. Visions that the image of a sports region could promote sports related industries beyond building sports grounds, training centres, hotels, or a football museum, have never been explored or launched. This is astonishing, as the field requires expertise in building sports arenas, developing IC-technologies for sports facilities, publishing sports magazines, developing sport related software for athletes, media and consumers, organizing communication networks, trading television rights, training sports journalists, police and security forces and hooligan moderators, providing sports medicine and running sports rehabilitation centres, training and hooligan moderators. The complex field of sports could secure many regional and export-oriented jobs in the Ruhr. Regrettably, all this is not seen and not promoted as a special field of regional competence. At least in the economic reports of the regional authorities the sports industry is not mentioned as a field worthwhile of public support in the context of endogenous regional economic policies (RVR 2013.)

**Competence field integration:** The successful integration of Polish and Irish coal miners and steel workers in the beginning of the 20th has always been hailed as a regional success story. Whether it was a real success or rather the consequence of labor shortages and successful recruitment policies remains to be open. However, in contrast to the successful integration of Italians and Spaniards in the 60s, the integration of Turkish migrants in the Ruhr is neither a success story nor that of integrating the migrants from the Balkan, North African or the Middle East. In recent decades integration was always considered a cultural and social challenge, while the economic dimensions of integration, the linkages of ethnic groups to their homelands and home economies in turn were rather neglected. Consequently structural policies never targeted ethnic minorities in a creative way. Ethnic start-ups hardly received any political attention from local or regional institutions. Consequently, other city regions in Germany, such as Berlin, Nuremberg, Stuttgart, Frankfurt, Mannheim or Cologne seem to have much better and closer linkages with the growing Turkish economy than the Ruhr (Kunzmann, 1991).

**Competence field vocational training:** The long German tradition of professional education is much praised in Europe and Asia. Many economists and policy makers know how much this tradition has contributed to the strength of the German economy. This contrasts very much to the Anglo-American (and OECD) perspective that this kind of professional education is outdated and does not meet any more the requirements of modern post-industrial economies. In the Ruhr, as in the whole of Germany innovative vocational training in all kinds of crafts and trades, linking practical experience be taught in enterprises with theoretical instructions in professional schools, organized by regional chambers of trade and crafts, is a much chosen option for many young school leavers. The comparatively low youth unemployment in Germany is very much the consequence of such a well-established dual educational system in the country. The renowned Hibernia schools are just one particular successful

facet of this approach to professional education. It is not really comprehensible why this tradition is not seen and utilized as a regional offer for qualifying institutions and agencies, perhaps even for young people from abroad who wish to acquire a practical (not a university) master degree certificate in Germany. The ongoing crisis in southern Europe has certainly made deficits in this field very obvious, and already started to bring young professionals to Germany, eager to undergo such vocational training programmes.

Such exemplary neglected competences and missed opportunities could have complemented the wide range of other innovative regional policies in the Ruhr.

Another neglected opportunity should be added. The city of Dusseldorf is known as the European location of Japanese companies in Germany. Düsseldorf was and still is the place where the Japanese–German (and now increasingly Korean) business relations play an important role for the local economy. Japanese managers and their families live temporarily in the city. Here they have Japanese shops and services, and their families have access to a Japanese school. In the 21 Century, China has replaced Japan as an important economic partner. However, in contrast to Cologne or Hamburg local economic development agencies in the Ruhr have hardly tried to attract Chinese companies. They are rather seen as competitors to local businesses, than as potential partners for a huge market in Asia. Today the Ruhr could have been a preferred target region for Chinese, and a popular residential location of Chinese families in Germany. Chinese students are already the largest group of foreign students at universities in the Ruhr. If they would and could stay after graduation in the Ruhr, and encouraged to start their own businesses, the regional economy would considerable benefit from their inter-cultural skills. However, the region has neither tried to benefit from the various linkages of regional industries to China, nor from the growing Chinese community in the Ruhr. But it is probably already too late to pursue structural policies targeting this community.

To conclude, no other old industrial region in the world has managed the immense technological and structural change in such a socially balanced way, no other high technology region has been so successful to preserve its industrial heritage and to recover the environment. This, as well, is a competence that can be exported, but apart from the world-renowned success of the IBA Emscher Park such expertise is not seen and not exported as competence of the Ruhr, neither by the globally active companies, nor by the many public and semi-public institutions located in the Ruhr.

### **6.3 The Ruhr 2013 and Beyond: Pathways to the Future**

There are no simple blue prints for the future of the Ruhr. The regional institutions and stakeholders are still convinced that they can compete with other city regions in Germany such as Frankfurt, Stuttgart or Munich, if they just follow the same mainstream policy lines. They have not yet accepted

that, with the decline of coal and steel, the heydays of the region are over. Slimming down the regional economy is not (yet?) considered to be an acceptable regional policy. Though strategic and socially responsible slimming down may be a “Jungbrunnen”, a real tonic for the Ruhr.

The reality is that despite all real and symbolic efforts, economic and social disparities between poor and wealthy districts in the Ruhr will continue to grow, like in many other city regions across Europe. This will happen, even if market-led development could be tamed. Given the mainstream liberal market ideology, traditional economic growth strategies and competition policies of the European Union, there is little hope that such trends can be stopped. In a way, the Ruhr reflects the situation in Europe as a whole (see Beck 2013). The big four local city governments dominate regional policies, the medium-sized and small cities, which, due to quite different economic conditions, are not really forming strategic alliances to act as a counter-power, and the disadvantaged poor local governments are mere observers and followers of mainstream regional policies. The *Regionalverband Ruhr*, like the European Commission, can only moderate the regional discourse, but not act and intervene.

Where to go from here? I could imagine three exemplary pathways to a spatially, economically and socially balanced future of the industrial Ruhr. These pathways, based on principles of a regional social contract, would follow three lines of strategic thinking: first, developing a region, focused on innovative, socially responsible technologies, second, profiling the Ruhr as a creative knowledge region, which reflects a holistic technology profile, and, third, promoting a polycentric urban region with livable city quarters, characterized by both traditional and new identities. These three strategies, based on the endogenous territorial capital of the Ruhr, are very much interrelated.

#### **6.4 The Ruhr: A socially responsible technology region**

In the past the Ruhr has gained its international reputation as a world-renowned technology region. The technologies developed in the region were based on steel and energy production. Just selling subsidized coal, steel and energy is not enough in the post-industrial age, although the related fields of competence, now complemented by new materials and IT technologies, are still dominant fields of competence. Engineering was and still is a strength of the region. To its disadvantage, and in the course of decade-long efforts to modernize the regional economy, the Ruhr, however, has gradually given-up its dominant technological profile instead of deliberately integrating environmental cultural, and social dimensions into its known and internationally much admired industrial and technological competence. In times of globalization a diffuse modernist image does neither attract a highly qualified labor force nor international investors. Strengthening the technology image and enriching the profile with real and visible, not just symbolic dimensions of products, processes and services that would be a realistic pathway into the future. The recent crisis in Europe has shown that an industrial past is not a burden; it can be used as an

asset for future ventures. Industries and crafts still play a role in regional economic development. The competence is available. The knowledge is deeply rooted in the region. It would just have to be developed further and oriented towards international clients and target groups. Then it would not matter whether the region is slimming down. The Ruhr would remain a world renowned high technology region.

### **6.5 The Ruhr: A Creative Knowledge Region with an International Appeal**

Knowledge and innovation, produced by local enterprises, public and private institutions, developed in innovative technology and science parks, researched and taught by regional institutes of higher education, have always been a key dimension of regional development strategies. The international reputation of universities, research centres, think tanks and other knowledge institutions is profiling a region. Renowned flagship universities are attracting international attention, scientists as well as students and researchers from all over the world. The Ruhr has a relatively young university landscape. Internationally it cannot compete with renowned university locations, such as Berlin, Aachen, Heidelberg or Munich. This has not so much to do with the quality of research and teaching, but more with the image of university cities and the quality of life the locations can offer. Such criteria are often neglected in the multiple assessment of the performance of universities and in ambiguous ranking exercises. A more intense and broad promotion of the knowledge profile of the Ruhr, of higher education from undergraduate to international post-doc programmes, and their orientation towards the technology profile of the region, has to receive more political support and become a more prominent element of regional strategies for a sustainable economic stabilization of the region. A deliberate functional division of labor among the regional institutes of higher education, with a long-term perspective, and not driven by zeitgeist coalitions, could strengthen the international visibility of the regional knowledge cluster. The regional technology parks play an important role in the suggested profiling of the knowledge region, and in linking universities and regional enterprises. Their contribution to regional economic development and to an explicit technology profile of the Ruhr has to be made more visible, internationally and nationally. Finally, the long experience in managing future oriented vocational training could add another significant dimension to the creative knowledge region.

One more aspect has to be mentioned. Institutes of higher education and technology parks are more than just academic factories. As work spaces for a highly educated labor they need to be better integrated into the industrial cityscape. It would make sense to up-grade the university quarters as walkable and easy accessible multi-functional living and working environments, offering high quality housing for staff, students, and researchers and their families, as well as a choice of public and private services, including sports, leisure and entertainment facilities. In order to attract more foreign "talents", strategies have to be explored, too, how the



scanty welcome culture of the Ruhr could be improved. Finally, a credible regional foreign policy that goes beyond real estate and tourism fairs or twinning arrangements, and beyond foreign university departments could successfully market the creative knowledge region internationally.

## 6.6 The Ruhr: livable polycentricity

The polycentric urban landscape of the Ruhr evolved from numerous industrial villages and small trading towns. The urban system of the region is dominated, by four major cities, Bochum, Dortmund, Duisburg and Essen, a number of second tier cities such as Gelsenkirchen, Recklinghausen, Mülheim an der Ruhr, Oberhausen, Hamm, Hagen, Herne and Bottrop, and many small and medium size cities. Even the major cities in the Ruhr are polycentric agglomerations of smaller urban cores with significant local identity. This applies to Dortmund, as well as to Essen, Duisburg, or Gelsenkirchen. This polycentricity is the hidden soul of the Ruhr. A further market-led concentration of economic development in the four major cities would rather increase spatial and social disparities in the Ruhr. The challenge of the future is to maintain this unique polycentricity, and gradually transform these neglected centres into attractive urban villages (Magnaghi, 2002) with clear functional identities. An alternative public sector led urban policy would include the revitalization of obsolete sub-district centres accessible by convenient public transport, promoting higher density and mixed functions, creating attractive public spaces and providing walkable access to regional green corridors. Such new urban villages preferably developed at strategic sites along the Emscher, linked to universities and science parks, and other landmarks of high external visibility, would exemplarily demonstrate new real identities in the region and represent the new urban economy. Following such strategies, new urban "villages" with a high quality of life would evolve over a few decades, transforming old industrial quarters into new life and work spaces. In principle such projects could be implemented in the Ruhr much easier than elsewhere in West Germany, as population density and land values are low. If the media and urban marketing agencies would support and cheer such projects with the same enthusiasm as they have done with the now renowned cathedrals of industrial culture, the strategy could be a success. Three or four exemplary pilot projects on sites, where constraints can be easily removed and success is easier to achieve, could over time trigger off the gradual transformation of the regional industrial landscape.

Who could promote such strategies? In principle, the *Regionalverband Ruhr*, the regional association of Ruhr cities and counties would be the most appropriate institution to pursue the pathways sketched above. However, experience has shown that this institution does not have and does not get the political and financial power to really take full responsibility for the transformation of the Ruhr and carry out such projects. Hence the local governments have to take the lead and jointly agree on aims and principles of such, (and more) pathways, and jointly them into action.

For decades to come, the Ruhr will remain a laboratory of structural change and urban transformation, where top-down and bottom-up efforts have to be combined and concerted to explore appropriate means for securing jobs and create life spaces in a region. The region, which over a century was formed by coal mining, steel production and heavy industries is still, and will remain an industrial region, though its urban landscape will have to change to meet the requirements of globally active industries and cosmopolitan citizens.

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## **Chapter 7: Is the number of business start-ups a function of agglomeration economies and the local knowledge economy? Evidence from The Netherlands**

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**Keywords:** business start-ups, innovation, agglomeration, size of municipalities

### **7.1 Abstract**

What explains the number of business start-ups in cities? Agglomeration economies may play a role, just like the presence of the knowledge economy. Hypotheses regarding the determinants of entrepreneurship are tested with data for 372 municipalities in the Netherlands to answer the research question: are the number of business start-ups (an indicator of entrepreneurship development) a function of agglomeration and the local knowledge economy? Agglomeration is measured by city size and the interdependency between municipalities. Demand for and supply of entrepreneurship variables are included in the regression models to control for differences in entrepreneurship, not explained by agglomeration and indicators of the knowledge economy. The results show that the degree of agglomeration in the Netherlands has positive effects on the number of start-ups in a municipality. However, these effects differ between regions in the Netherlands. In the Randstad, agglomeration economies are less relevant compared to the rest of the Netherlands. In this area, characterized by relatively high population density and concentration of urban agglomerations, it is less important for entrepreneurs to be located within an agglomeration to benefit from the agglomeration externalities. In the suburban and rural municipalities of the Netherlands, the number of business start-ups is clearly influenced by agglomeration. Among the indicators for the knowledge economy only the presence of small firms shows a consistent, significant and positive influence on the number of business start-ups. Features of the local economy are also important, such as urban diversity and other (dis)economies than agglomeration.

### **7.2 Introduction**

The knowledge economy is often considered the basis for economic success, and in particular the regional knowledge economy is important, because it is "spurring technological progress" (Glaeser et al. 2010b). However, does a well developed localized knowledge economy attract business start-ups in the same way agglomeration is supposed to attract new enterprises? This question is central in this article. We will first review the local determinants of entrepreneurship and suggest an analytical framework. Then the degree of agglomeration in the Netherlands will be

assessed and our hypotheses will be presented. Subsequently the data will be analyzed and the results discussed before drawing some conclusions.

### 7.3 Local determinants of entrepreneurship

The entrepreneurship, agglomeration and knowledge economy concepts will be defined before presenting the theoretical relations between them. Arzeni (1998) states that: “entrepreneurial behavior is a key to accelerating the generation, dissemination and application of innovative ideas”. The link between entrepreneurial success and innovation has been studied by many since Schumpeter (1951) described entrepreneurs as innovators. Glaeser et al. (2010a) observe that entrepreneurs often seem to have been significantly influenced by features of their local economies, and that they have often influenced the fate of those economies. We will focus on the first part of their observation, analyzing whether a localized knowledge economy attracts business start-ups in the same way agglomeration is supposed to attract new enterprises?

Agglomeration refers to the concentration of people or economic activities. Exchanging goods, services and ideas is easier if people and economic activities are located near each other, for example in cities.<sup>71</sup> Urban areas are considered attractive for entrepreneurs due to the presence of agglomeration economies, the sum of urbanization and localization externalities (Acs et al. 2008). Urbanization economies are not industry specific. These externalities occur in large urban and, in particular, in metropolitan regions. Urban areas are densely populated and have a diversified population. There is a variety of economic activities and a range of different industries in cities. The importance of urban diversity for innovation and economic growth was already observed by Jacobs (1969). She argues that the most important source of knowledge spill-overs is external to the industry in which the firm operates.<sup>72</sup> Cities are considerable incubators for innovation because of the great diversity of industries and therefore a great source of knowledge (Audretsch & Feldman 2003). Jacobs suggests that this diversity fosters cross-fertilization of ideas. Alongside the positive externalities that arise from urbanization as well as localization, negative externalities can occur in regions characterized by high population density (Duranton & Puga 2000).<sup>73</sup>

Localization economies are beneficial for most economic actors in a certain region, but they are particularly important for start-ups (Bosma et al. 2008). Entrepreneurs can derive opportunities from these economies.

<sup>71</sup> Klepper (2010) de-emphasizes the role of agglomeration economies, emphasizing the importance of the location of an outstanding innovative firm in clusters as the most important factor explaining their growth.

<sup>72</sup> A typical form of knowledge spill-over is the spin-off firm. Entrepreneurs use knowledge created in incumbent firms, that might otherwise have remained unused or dormant, and use this knowledge to start up a new firm (Audretsch & Thurik 2008). Our data does not allow us to make the distinction.

<sup>73</sup> Examples of such diseconomies of agglomeration are pollution, congestion or increased wages (Bosma et al. 2008). Furthermore, the crime rate often increases with the size of an urban area (Glaeser & Mare 2001).

Knowledge is essential in creating the entrepreneurial opportunities for small and new firms (Audretsch & Keilbach 2005). As opposed to costly research and development (R&D), knowledge spill-overs can be acquired at lower cost. In order to get access to this knowledge one needs geographical proximity, especially when the knowledge concerned is of an implicit nature (or tacit knowledge; Acs & Varga 2005).<sup>74</sup>

Because of knowledge spill-overs agglomerations are the 'place to be', where 'everything happens'. Knowledge spill-overs allow firms to acquire knowledge from other economic players without having to pay for it in a formal market transaction (De Clercq et al. 2007). It is an important externality of agglomeration: information flows more easily locally than over greater distances (Krugman 1991). This type of knowledge transfer requires face to face interaction. Because firms are operating in the same industry, they have a higher absorption capacity of information concerning this industry, and hence they are better able to understand and use the knowledge obtained. Economies of agglomeration can also occur due to labor pooling. The third externality arising from agglomeration is specialization. According to Marshall (1920), in a district in which there is a large production of the same kind, expensive machinery can be used because of scale advantages (Krugman 1991).

Knowledge is a key factor for driving growth and hence the word is used to characterize the modern economy as the knowledge economy. It is seen as the key to economic growth and is also important for the number of new startups. Innovation is mostly a result of organizational learning as well as formal research and development (R&D); it always involves investment in developing skills and knowledge and usually in physical assets and marketing effort. According to Porter (1990), innovations can shift competitive advantage when rivals either fail to perceive the new way of competing or are unwilling or unable to respond. The most typical causes of innovations that shift competitive advantage are new technologies, new or shifting buyer needs, the emergence of a new industry segment, shifting input costs or changes in government regulations. An important part of local variation in business start-ups can be explained by the specific characteristics of different regions. Bosma et al. (2008) found that positive externalities from agglomeration influence new firm formation. As Schumpeter (1951) suggested innovation is the entrepreneurial function. Entrepreneurs create new combinations with existing resources. Acs and Varga (2005) also argue that technological change is an important source of entrepreneurial opportunity, because it allows resources to be allocated in different and potentially more productive ways. Hence, one could expect high rates of entrepreneurship in areas characterized by high levels of innovation.

Arzeni (1999) emphasizes that many OECD economies are moving toward a knowledge based-economy, meaning that they are "more directly

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<sup>74</sup>Tacit knowledge refers to more technological, highly contextual, and hardly codified knowledge, which is difficult to articulate through language (Boschma 2005).



based on the production, distribution and use of knowledge and information".<sup>75</sup> Raspe (2009: 13) stresses that the existence of knowledge-based interfirm relationships is important for the regional knowledge economy, besides internal knowledge related firm capabilities. The knowledge economy contributes to innovation, which can be measured by reviewing the R&D expenditures of a firm or region (Smith 2005). However, R&D is neither a sufficient nor a necessary condition for innovation. Furthermore, R&D often takes place in larger companies and this indicator would exclude (non R&D based) innovations by small firms (Smith 2005). The number of issued patents is another way to measure innovation,<sup>76</sup> or innovation can be measured by means of questionnaires, although this may provide a subjective perspective. We focus on indicators of the knowledge economy such as the proportion of highly educated labor (a potential pool for innovation), and the number of small firms present.<sup>77</sup>

The number of business start-ups also depends on demand and supply for entrepreneurship in a municipality. Regional consumers are of great importance (Bosma et al. 2008). If demand increases, opportunity based entrepreneurship is stimulated and new firms are likely to be set up to satisfy increased demand (Reynolds et al. 1994). Both the size of the population and their level of income have an effect on the demand for entrepreneurship. Local supply factors further shape the number of business start-ups in that region (Audretsch & Fritsch 1994).

Changes in unemployment could also influence the demand and the supply for entrepreneurship. Increased unemployment increases the supply of entrepreneurship because people are pushed into self-employment (Reynolds et al. 1994). Supply of entrepreneurship could also decrease because of increased opportunity costs for starting a firm. Nascent entrepreneurs who still have a job postpone their decision to start their own firm. Creigh et al. (1986) suggest that increasing regional unemployment implies that the conditions are not ideal for starting an entrepreneurial activity. It leads to lower consumer spending and falling demand; which could compensate the 'push' effects of unemployment. Finally, the ethnic background of the entrepreneur can also influence the decision to start one's own enterprise. Brooksbank (2000) found significant differences in the self-employment rate between populations with different ethnic background. In the Netherlands the percentage of entrepreneurs from some ethnic groups is significantly higher than their share of the total population and the percentage of self-employed immigrants more than doubled in recent years.

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<sup>75</sup> A scorecard for the knowledge economy at the national level has been developed by the World Bank. The World Bank developed a scorecard for the knowledge economy (Dahlman and Utz, 2005).

<sup>76</sup> Limitations to this approach are that not all innovations are patented. Moreover, they are an indicator for invention and not for innovation (Smith 2005).

<sup>77</sup> CBS only provides data on the labor force for municipalities with more than 10,000 inhabitants. As a consequence the number of observations decreased to 389 and due to some missing values to 372 observations.

This leads us to focus in our theoretical framework on agglomeration and indicators of the knowledge economy to explain the number of business start-ups per municipality. Sternberg and Wennekers (2005) point to the fact that potentially high-growth business start-ups enhance knowledge spill-overs and economic growth. Other factors they mention as underlying new firm start-ups are demand, urbanization, and small firm presence, besides government policies. Glaeser et al. (2010b) point to the spatial differences in the supply of entrepreneurship, reflecting historical accident or relatively exogenous variables. Glaeser et al. (2010b) also find that economic growth is highly correlated with the presence of small entrepreneurial firms. Saxenian (1994) made the same point for Silicon Valley. We will study the impact of four indicators of the knowledge economy, while controlling for six variables (demand and supply factors of entrepreneurship). Box 7.1 contains an overview and a short description of the variables used. The number of business start-ups, the dependent variable, is a proxy for entrepreneurship.

**Box 7.1: Independent and control variables used**

(concern 2006 unless otherwise indicated)

<b>Independent variables for agglomeration</b>	<b>Independent variables for knowledge economy</b>	<b>Control variables for demand and supply for entrepreneurship</b>
City size Dummy G4 (largest cities) Dummy G27 (27 next largest municipalities) Dummy Non-G (smaller, rural municipalities) Degree of agglomeration Dummy core Dummy sub-urban Dummy rural	Highly educated labor force as share of total labor force Students in higher education as share of total labor force Small firms (<10 employees) as share of total labor force Dummy university, stating whether an agglomeration has a university; spill-overs are expected for surrounding municipalities as well	Unemployment as share of total labor force per municipality Unemployment growth between 2004 to 2006 per municipality GDP growth from 2003 to 2006 per capita/municipality Income per income owner Population density 2006 per municipality Population size 2006 per municipality Population growth from 2003 to 2006 per municipality

Note: All variables concern data at the municipal level.

The first control variable used is unemployment. To make the variable comparable between municipalities of different size the unemployed part of the labor force is calculated. When unemployment is high, the pool of potential (necessity) entrepreneurs is larger, but potential entrepreneurs may also postpone their entrepreneurial aspirations. The growth of unemployment is also included. It is a dynamic indicator used to control for changes in the demand and supply for entrepreneurship. The growth of unemployment is calculated as the change in the number of the unemployed in the labor force between 2004 and 2006. Thirdly, population growth is included to control for changes in demand and supply for entrepreneurship. A larger population increases demand for products and

services but also increases the pool of potential entrepreneurs. The growth between 2003 and 2006 is calculated.<sup>78</sup> Fourthly, as population density is also expected to influence the number of business start-ups it is included. This variable is calculated as the number of inhabitants per km<sup>2</sup> for each municipality. Fifthly, per capita GDP is incorporated in the dataset as a measure for the overall welfare of a municipality. A high GDP increases the access to financial resources but also increases purchasing power, which means higher demand. A high per capita GDP could also lead to higher wage cost, which could negatively influence the number of business start-ups. Finally, per capita GDP growth has been added, for its influence on demand and supply for entrepreneurship, but now controlling for changes between 2003 and 2006.

**Figure 7.1: Macro-zoning with 2006 data**



#### 7.4 Research on agglomeration in the Netherlands

Agglomeration economies, including knowledge spill-overs, diminish with distance. Knowledge spill-over is also likely to occur more in an innovative environment. The research question addressed in this article is: what explains the number of start-ups in Dutch municipalities and are the number of start-ups different in different zones in the Netherlands, or what is the importance of the specific features of local economies? In the Netherlands cities are municipalities, but there are also 'rural' municipalities made up of a number of villages or smaller urban centres. They are usually the result of

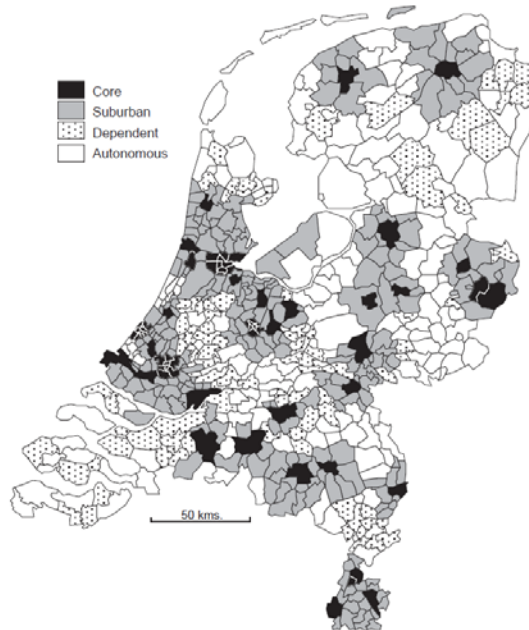
<sup>78</sup> Due to the fact that some municipalities merged in this period data on population for these municipalities has been added so that there is a natural growth rate, instead of an instant increase which could bias the outcome.

a merger of even smaller municipalities. Since 2002, urban areas in the Netherlands count more residents than rural areas. The increase of the urban population has been the highest in the provinces of North- and South-Holland, where the percentage of inhabitants living in urban areas is the highest of the country (CBS 2006). This is the western part of the country, the so-called Randstad, which occupies 20 percent of the land area of the Netherlands, while approximately half of the Dutch population lives there (Nijmeijer 2000). The Randstad is made up of the four largest cities in the Netherlands (Amsterdam, Rotterdam, The Hague and Utrecht) and several smaller cities (municipalities) (figure 7.1).

There are two ways in which the degree of agglomeration for the Netherlands is considered in this article. The first is a division based on city size. All municipalities are divided into one of three categories, being 'G4', 'G27' and 'non-G'. The G4 consists of the four largest Dutch cities, the G27 consists of the 27 subsequent large cities, and non-G is the category which comprises municipalities not included in G4 or G27. The G4 has the highest degree of agglomeration, followed by the G27 and non-G respectively. Hypothesis 1 uses this classification. This method does not incorporate the interdependency between municipalities, but rather assesses each municipality separately based purely on city size. In a country with a high population density, municipalities can be located close together. Less urbanized municipalities can benefit from more populated municipalities and enjoy the agglomeration economies of that larger municipality, which is why we also suggest another classification. The second method used to determine a municipality's degree of agglomeration is based on a model constructed by Van Oort (2002), the connectedness spatial regime. This spatial regime is based on the number of in and out-commuting workers on a daily basis between municipalities and thus measures interdependency between municipalities. Van Oort (2002) specifies four types of connectedness, namely 'core', 'suburban', 'dependent' and 'autonomous' (of which core is the highest and autonomous is the lowest degree of agglomeration). To be labeled as a core area, at least 15,000 workers have to commute from outside municipalities to this core municipality, on a daily basis. Suburban areas depend on core areas for employment. If twenty percent of municipal's labor force commutes to a nearby core region on a daily basis it is labeled as suburban. We updated Van Oort's model, using data from 2006.<sup>79</sup> The current 'core' and 'suburban' regions have been identified and the remaining municipalities have been grouped together to form the group 'rural'.

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<sup>79</sup> The dataset used is extracted from multiple sources, including the CBS (2006) and the Chamber of Commerce. 2006 is the most recent year for which all necessary data are available.

**Figure 7.2: Connectedness spatial regime (1999)**

A graphical overview of the results can be found in figure 7.3, while figure 7.2 contains the original overview of the connectedness spatial regime as constructed by Van Oort (2002). A remarkable difference between both figures is the enlarged core area in the centre of the Netherlands. Compared to the 1990s there is now a large core area, which consists of two large municipalities, namely Ede and Apeldoorn forming the largest geographical core region within the Netherlands.

**Figure 7.3: And this regime in 2006**

This is mainly due to a merger of these municipalities with surrounding municipalities. A second difference between the 1990s and 2006 is the emergence of new core areas. An entire new core area emerged for example in the northern provinces, around the municipality Assen. With the emergence of this new core, several suburban centres emerged on the map around this core. In the Randstad Amsterdam, Rotterdam, The Hague and Utrecht have become even larger core regions.

Box 7.2 presents the hypotheses. The first one concerns the importance of city size. Hypotheses 2 to 4 concern the impact of different degrees of agglomeration (core, suburban and rural) on the number of business start-ups. Finally positive effects of indicators of the knowledge economy of municipalities are hypothesized (number 5).



**Box 7.2: Relations between number of start-ups, agglomeration and knowledge economy**

<p><b>Hypothesis 1:</b> City size has a positive effect on the number of business start-ups:  a: G4 municipalities have a higher number of business start-ups than non-G municipalities  b: G4 municipalities have a higher number of business start-ups than G27 municipalities  c: G27 municipalities have a higher number of business start-ups than non-G municipalities</p>
<p><b>Hypothesis 2:</b> The degree of agglomeration has positive effects on business start-ups:  a: Core municipalities have a higher number of business start-ups than rural municipalities  b: Core have a higher number of business start-ups than suburban municipalities  c: Suburban have a higher number of business start-ups than rural municipalities</p>
<p><b>Hypothesis 3:</b> Agglomeration of municipalities in the Randstad has no effects. There the:  a: Core do not have a different number of business start-ups than rural municipalities  b: Core do not have a different number of business start-ups than suburban municipalities  c: Suburban do not have a different number of business start-ups than rural municipalities</p>
<p><b>Hypothesis 4:</b> The degree of agglomeration of suburban and rural municipalities has positive effects on the number of business start-ups:  a: Core municipalities have a higher number of business start-ups than rural municipalities  b: Core municipalities have higher number of business start-ups than suburban municipalities  c: Suburban have a higher number of business start-ups than rural municipalities</p>
<p><b>Hypothesis 5:</b> The knowledge economy has positive effects on number of business start-ups:  a: The number of higher educated has a positive effect on the number of business start-ups  b: The number of students in higher education has a positive effect on business start-ups  c: The number of small firms has a positive effects on the number of business start-ups  d: The presence of a university has positive effects on the number of business start-ups</p>

**7.5 The analysis**

To test the five hypotheses, four regression models will be estimated, given most variables are continuous. The four models use the same variables for the knowledge economy and for demand and supply, but, the variables for agglomeration differ. We start comparing the G4 with the G27 and the smaller municipalities, and then compare different degrees of agglomeration: the core with the suburban and rural municipalities. This requires two composite dummies for each comparison and two estimations for each of the four models, namely a variant A and B, where A represents the comparison with G27 (or the suburban in model 2 to 4) and B with non G (or with rural municipalities in model 2 to 4). In the tables per model both variants are given since only the coefficients for the second comparison (with G27, or suburban municipalities) are different. A selection variable is used to test hypotheses for the different macro zones in the Netherlands (hypotheses 3 and 4).

Several assumptions concerning the variables have been tested (Field 2005): normality<sup>80</sup>, multicollinearity<sup>81</sup>, heteroskedasticity<sup>82</sup> and autocorrelation<sup>83</sup>. The multiple coefficient of determination ( $R^2$ ) will be mentioned per model.<sup>84</sup> As explained in footnotes the four tests and the tests for each model provided values within acceptable intervals.

To grasp the importance of innovation a variable was created through factor analysis, incorporating all four indicators used. However the explanatory value of this fifth model was extremely low. Three other variables have been tested, based on Raspe and Van Oort (2006), who constructed a number of innovation variables using factor analysis. The three resulting factors are 'R&D', 'Innovation' and 'Knowledge workers'. These factors consist of multiple indicators. We also ran regressions with these three factors but found no significant results. The choice of the indicators for the knowledge economy is constrained by the availability of data at the municipal level on R&D expenditures and patents per municipality.

## 7.6 Regression model 1 Number of start-ups and city size, municipalities compared

Table 7.1 shows the regression results for model 1 comparing the G4 with other municipalities. 37.4% of the variation in the dependent variable is explained by the independent variables in the model.<sup>85</sup> Model 1 shows no

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<sup>80</sup> Normality is tested for in all models using the distribution of the residuals. To test this formally, the skewness and kurtosis test are conducted. The skewness indicates whether the distribution is skewed and if so if the skewness is to the left or the right (Field 2005). Kurtosis provides a measure of the thickness of the tails of the distribution or pointyness (Pindyck and Rubinfeld 1998; Field 2005). For both skewness as well as kurtosis the rule of thumb is that the value should be within the critical values of -2 and 2.

<sup>81</sup> To test for multicollinearity the collinearity tolerance and the variance inflation factor (VIF) are calculated. The VIF is calculated by dividing 1 by the collinearity tolerance. The critical value for VIF is 5 and therefore the critical value for tolerance is 0.2. If the calculated values are below 5 for VIF and above 0.2 for tolerance, it is expected that no multicollinearity is present.

<sup>82</sup> The variance of the residuals should be constant. If this is not the case, heteroskedasticity may become a problem. If the variances are unequal, then the reliability of each observation (used in the regression) is unequal.

<sup>83</sup> To test for autocorrelation, the Durbin-Watson statistic is used. The test statistic can vary between 0 and 4 with a value of 2 meaning that the residuals are uncorrelated (Field 2005). The critical values are 1.5 and 2.5.

<sup>84</sup> Measuring the variation in the dependent variable that is explained by the combination of the independent variables in the regression model.

<sup>85</sup> In model 1 both the skewness (0.095) and the kurtosis (1.520) are within the critical values of -2 and 2. Therefore normality can be assumed. With respect to multicollinearity, none of the values for tolerance of the independent variables are below 0.2. Furthermore, none of the values for VIF are above 5, indicating the absence of multicollinearity. The Durbin-Watson statistic is 1.908, meaning that there is a slight positive correlation between the independent variables. However, within the critical values of 1.5 and 2.5. The scatterplot shows no distinctive pattern for heteroskedasticity.

significant results for the G4 variable and therefore the null hypothesis that the coefficient is not significantly different from zero, cannot be rejected. Hence, it cannot be assumed that there are more business start-ups in the four largest cities in the Netherlands compared to the small and medium sized cities. The results do show a significant difference between medium size municipalities (G27) and the smaller ones (non-G) in that the medium size municipalities have significantly more business start-ups.

Three indicators for the knowledge economy do not show significant results. One indicator of the knowledge economy which has a significant influence on the number business start-ups is the number of small firms. The hypothesis that the presence of small firms has no influence on the number of business start-ups can be rejected suggesting their presence has a positive effect on entrepreneurship development.

**Table 7.1: Regression results model 1: City size, all municipalities**

Variables (n=372)	$\beta$ -Coefficient	Std. Error	T-test	Significance (p-value)
(constant)	<b>6.624</b>	1.413	4.688	0.000
Dummies for	<b>agglomeration</b>			
G4 /non-G	1.538	1.062	1.448	0.148
Model A G4 /G-27	0.637	1.060	0.601	0.548
Model B G27 /non-G	0.901	0.434	2.079	*0.038
Indicators of	the	knowledge	economy	
High Educated as part of LF	0.006	0.014	0.417	0.677
Students Higher Education/ LF	0.001	0.003	0.521	0.602
Small firms as part of LF	0.050	0.004	13.516	*0.000
Dummy university	0.041	0.359	0.113	0.910
<b>Demand and</b>	<b>Supply</b>	<b>variables</b>		
Population growth 2003-06	0.084	0.043	1.951	**0.052
Population density 06	1.013E-5	0.000	0.081	0.935
GDP growth 2003-06	-0.032	0.059	-0.536	0.593
Per capita GDP	-0.168	0.073	-2.298	*0.022
Unemployment as part of LF	0.124	0.054	2.285	*0.023
Unemployment growth	-0.057	0.076	-0.760	0.448

Note: (\*) significant at 5% level; (\*\*) significant at 10% level; statistical calculations SPSS. LF is labor force.

With respect to the control variables for the demand and supply of entrepreneurship, four variables show no significant influence, while three do. The first significant variable is population growth. The second significant variable is per capita GDP and finally, unemployment is significant and has a positive influence on the number of business start-ups. It seems that an

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The White's test shows that  $nR^2 = 125.74$  which is slightly above the critical value of 124.3 (the chi-square (5%) for degrees of freedom (100) = 124.3 (Aczel & Sounderpandian 2002)). However, it does not exceed the critical value for 1 % (135,81).



increase in both population growth and unemployment have a positive and important effect on the number of business start-ups, whereas an increase in the per capita GDP has a negative effect on the number of business start-ups.

### 7.7 Model 2 Number of start-ups and degrees of agglomeration for all municipalities

The regression results for all municipalities in the Netherlands together are provided in table 7.2. 37.6% of the variation in the dependent variable is explained by the independent variables in the model.<sup>86</sup> Core municipalities have significantly more business start-ups than rural municipalities and core municipalities also have significantly more business start-ups than suburban municipalities. Suburban municipalities show no significant difference compared to rural municipalities. Thus, for the Netherlands, the agglomeration economies in the core seem to influence the number of business start-ups positively. Suburban municipalities, however, do not seem to benefit from these agglomeration economies.

**Table 7.2: Results model 2: Degrees of agglomeration for all municipalities**

Variables (n=372)	$\beta$ -Coefficient	Std. Error	T-test	Significance (p-value)
(constant)	6.906	1.404	4.919	0.000
Dummies for agglomeration				
Core/rural	1.001	0.390	2.565	*0.011
Model A core/ suburban	0.862	0.401	2.147	*0.032
Model B suburban/rural	0.139	0.299	0.467	0.641
Indicators of the knowledge economy				
Higher Education as part of LF	0.004	0.014	0.306	0.759
Students Higher Education/LF	0.001	0.003	0.315	0.753
Small firms as part of LF	0.050	0.004	13.450	*0.000
Dummy University	0.113	0.382	0.297	0.767
Demand and supply variables				
Population growth 03-06	0.086	0.043	1.983	*0.048
Population density 2006	2.182E-5	0.000	0.181	0.857
GDP growth 03-06	-0.015	0.059	-0.256	0.798
Per capita GDP	-0.189	0.072	-2.610	*0.009
Unemployment as part of LF	0.128	0.054	2.386	*0.018

<sup>86</sup> The second model shows values of 0.095 for skewness and 1.517 for kurtosis, which are within the critical values of -2 and 2. Also normality can be assumed. For multicollinearity all values are above 0.2 and all values for VIF are below 5. The Durbin-Watson statistic shows a value of 1.917, suggesting a slight positive correlation between the independent variables. This is, however, still between 1.5 and 2.5. The scatterplot suggests a slight indication of heteroskedasticity, however after conducting the White's test, the  $nR^2$  is 120.9 and thus lies below the critical value of 124.3. Consequently, no heteroskedasticity is present (Aczel & Sounderpandian 2002).

Unemployment growth	-0.055	0.076	-0.727	0.467
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Note: (\*) significant at 5% level; (\*\*) significant at 10% level; statistical calculations SPSS. LF = labor force.

Similarly to model 1 three indicators for the presence the knowledge economy show no significant influence on the number of business start-ups. Although a higher number of educated labor, more students in higher education and the presence of a university have positive coefficients, none of them are significantly different from zero. The presence of small firms has again a positive and significant impact on the number of business start-ups in all municipalities.

The demand and supply variables show three significant relations. These are with population growth (with a positive coefficient), unemployment (with a positive coefficient) and with per capita GDP (negative coefficient). Overall, the variables for the knowledge economy and demand and supply factors show similar results compared to the first model.

### 7.8 Regression results model 3: Degrees of agglomeration, only the Randstad

The regression results for model 3 are shown in table 7.3. The model used for the Randstad is the same as for the Netherlands, with the exception that a selection variable is used; meaning only municipalities located in the Randstad are entered in the regression. 56.2% of the variation in the dependent variable is explained by the independent variables in the model.<sup>87</sup> In accordance with hypothesis 3, the dummies for agglomeration in the Randstad show no significant results. The degree of agglomeration of municipalities in the Randstad seems to have no influence on the number of business start-ups. A positive influence of agglomeration on entrepreneurship in core municipalities is also not found in the Randstad. With respect to the indicators for the local knowledge economy only the share of highly educated workers in the labor force shows no significant influence. The remaining indicators do show significant influence on the number of business start-ups. The variable number of students in higher education and the variable small firms show a highly significant and positive influence. Finally, the presence of a university shows a significant effect on the number of business start-ups. However its negative coefficient

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<sup>87</sup> Skewness and kurtosis for model 3 show values of 0.015 and 1.799 respectively and are within the critical values of -2 and 2. With regards to multicollinearity, the values for tolerance and VIF for dummy university are 0.205 and 4.875 respectively, between the critical values 0.2 and 5. All other values for each variable are also in between the critical values, indicating no problem of multicollinearity. The autocorrelation, measured by the Durbin-Watson statistic shows a value of 1.988, suggesting a slight positive correlation between the independent variables, but still between 1.5 and 2.5. There are no signs of heteroskedasticity, both from the scatterplot (no pattern detectable) and from the White's test ( $nR^2 < \chi^2 \rightarrow 102.3 < 124.3$ ) (Aczel & Sounderpandian 2002). Hence also for the third model the assumptions are met, and conclusions can be drawn from the regression results.

suggests that the presence of a university decreases the number of business start-ups for municipalities in the Randstad.

When comparing the results for both agglomeration and the knowledge economy indicators, with the results for the whole of the Netherlands (model 2), it is striking that in the Netherlands the degree of agglomeration positively influences entrepreneurship, whereas in the Randstad this influence seems absent. With regards to the indicators of the knowledge economy, the situation seems the other way around. In the Netherlands as a whole only small firms show a significant influence, whereas for the Randstad all but the number of highly educated workers significantly influence the number of business start-ups.

**Table 7.3: Results degrees of agglomeration, only the Randstad**

Variables (n=111)	$\beta$ -Coefficient	Std. Error	T-test	Significance (p-value)
(constant)	8.407	2.303	3.650	0.000
Dummies for	agglomeration			
Core/rural	0.266	0.644	0.413	0.681
Model A core/suburban	0.762	0.704	1.081	0.282
Model B suburban/rural	-0.496	0.651	-0.762	0.448
Indicators of	the	knowledge	economy	
Higher Education as part LF	-0.020	0.023	-0.871	0.386
Students Higher Educ. LF	0.021	0.007	2.984	*0.004
Small firms as part of LF	0.040	0.005	8.069	*0.000
Dummy University	-1.320	0.748	-1.766	**0.081
Demand and	supply	variables		
Population growth 03-06	0.095	0.052	1.835	*0.070
Population density 2006	0.000	0.000	-1.231	0.221
GDP growth 03-06	0.045	0.108	0.421	0.675
Per capita GDP	-0.264	0.117	-2.258	*0.026
Unemployment as part of LF	0.490	0.111	4.431	*0.000
Unemployment growth	-0.350	0.135	-2.602	*0.011

Note: (\*) significant at 5% level; (\*\*) significant at 10% level; statistical calculations SPSS. LF is labor force.

Compared to the previous two models, the same demand and supply of entrepreneurship variables are significant, with the addition of growth in unemployment. Both population growth and unemployment have a positive influence on business start-ups, whereas per capita GDP and unemployment growth have a negative influence. The influence of unemployment on the one and unemployment growth on the other hand will be discussed below.

## 7.9 Regression results model 4: Business start-ups in suburban and rural municipalities

Table 7.4 gives the results for the other macro zone, suburban and rural municipalities, using a selection variable. 41.3% of the variation in the dependent variable is explained by the independent variables in the model.<sup>88</sup> Both the core and the suburban municipalities show a positive and significant influence on the number of business start-ups compared to rural municipalities. This means that municipalities that are part of an urban agglomeration (both core and suburban) have more business start-ups compared to rural municipalities. Outside the Randstad, it does seem advantageous to be located within an urban agglomeration. This is in line with what we expected in our hypotheses.

**Table 7.4: Results model 4: Start-ups in the suburban and rural municipalities**

Variables (n=261)	$\beta$ -Coefficient	Std. Error	T-test	Significance (p-value)
(constant)	3.633	2.192	1.658	0.099
Dummies for Agglomeration				
Core/rural	0.815	0.471	1.733	**0.084
Model A core/suburban	0.220	0.493	0.447	0.656
Model B suburban/rural	0.595	0.338	1.763	**0.079
	Indicators of	the	knowledge	economy
Higher Education as part of LF	0.006	0.017	0.319	0.750
Students Higher Educ. LF	-0.004	0.003	-1.334	0.180
Small firms as part of LF	0.064	0.005	11.960	*0.000
Dummy University	1.074	0.510	2.105	*0.036
	Demand and	supply	variables	
Population growth 03-06	0.101	0.069	1.476	0.141
Population density 2006	0.001	0.000	2.125	*0.035
GDP growth 03-06	-0.063	0.067	-0.948	0.344
Per capita GDP	-0.105	0.109	-0.962	0.337
Unemployment as part of LF	0.081	0.063	1.298	0.195
Unemployment growth	0.029	0.086	0.331	0.741

Note: (\*) significant at 5% level; (\*\*) significant at 10% level; statistical calculations SPSS. LF is labor force.

<sup>88</sup> For model 4 skewness shows a value of -0.540 and kurtosis shows values of 2.305. The skewness is within the critical value of -2 and 2. However, the kurtosis is larger than 2, indicating pointyness with regards to the normal distribution. This is also visible in the histogram. Due to the sufficiently large degrees of freedom (df=371) which is larger than 20, it does not pose a threat. Thus, normality is assumed. With regards to the tolerance of multicollinearity, all values are above 0.2 and the VIF values are all below 5, indicating no problem of multicollinearity. The autocorrelation, measured by the Durbin-Watson statistic shows a value of 2.081, suggesting a slight negative correlation between the independent variables. This is still between 1.5 and 2.5.

There is no difference in the number of business start-ups between the core and suburban areas. This implies that there are no advantages of core municipalities compared to suburban municipalities in terms of agglomeration economies. In line with the results of three previous models, the presence of small firms has again a positive and significant influence on the number of business start-ups. Also the presence of a university is significantly influencing the number of business start-ups. The presence of a university now has a positive influence. Possible causes for this phenomenon will be discussed later on. The number of highly educated workers and the number of students in higher education, are not significant.

Three variables showing significant influence in the previous three models do not seem to have the same effects in suburban and rural municipalities. Population growth, per capita GDP and unemployment do not have a significant influence. Population density, on the other hand (in contrast to the previous three models) is significant and has a positive effect. This suggests that municipalities with a higher population density have a higher number of business start-ups. This result confirms the importance of agglomeration in suburban and rural municipalities with respect to the number of business start-ups.

### **7.10 Discussion**

Table 7.5 compares the different models with the hypotheses. The determinants of the number of business start-ups are displayed for each model. Positive significant results are indicated by X and negative significant results as (X).

Based on the theoretical framework it has been hypothesized that for the Netherlands the degree of agglomeration has a positive effect on the number of business start-ups. Table 7.5 shows no significant difference for the four largest cities compared to the 27 large and the remaining municipalities. Thus, hypothesis 1a and 1b, stating that G4 has more business start-ups compared to G27 and smaller municipalities are rejected. An explanation for the absence of a significant influence of the G4 on the number of business start-ups suggested in the literature is the presence of diseconomies of agglomeration in the four largest cities, but we had no indicators of such diseconomies at the municipal level. The G27 municipalities, on the contrary, are found to have significantly more business start-ups than the smaller municipalities, which is in accordance to hypothesis 1c suggests that agglomeration economies outweigh possible diseconomies in these municipalities.

Table 7.5 also shows that core municipalities have a higher number of business start-ups compared to suburban and rural municipalities. Therefore, hypothesis 2a and hypothesis 2b cannot be rejected. No evidence was found that suburban municipalities have more business start-ups compared to rural municipalities. As such, hypothesis 2c cannot be accepted. This means that the degree of agglomeration does influence the number of business start-ups in the Netherlands, however only for the

highest degree of agglomeration (the core). Contrary to the results regarding the G4-G27 model, the agglomeration economies appear to outweigh the diseconomies. The findings that the highest degree of agglomeration influences business start-ups in the Netherlands, while it does not in the case of the four biggest cities can be explained by the differences between the Randstad on the one hand and suburban and rural municipalities on the other. We will come back to these differences.

**Table 7.5: Overview of results**

Variables	G4- G27	NL	Randstad	Suburban & rural municipalities
Agglomeration dummies				
G4/non G		n.e.	n.e.	n.e.
G4/G27		n.e.	n.e.	n.e.
G27/non G	X	n.e.	n.e.	n.e.
Core/rural	n.e.	X		X
Core/suburban	n.e.	X		
Suburban/rural	n.e.			X
Local knowledge economy				
Higher educated of labor force				
Students higher education of LF			X	
Small firms per labor force	X	X	X	X
Dummy university			(X)	X
Demand and supply variables				
Population growth 2003-06	X	X	X	
Population density 2006				X
GDP growth 2003-06				
Per capita GDP	(X)	(X)	(X)	
Unemployment per labor force	X	X	X	
Unemployment growth			(X)	

N.e. = Not estimated

Suburban municipalities, which were expected to also benefit from these agglomeration economies, fail to show a similar result. The core municipalities were defined on the basis of the number of in and out commuting employees, which indicates the interdependency. It suggests that employees who already commute to a core usually decide to start their business over there rather than in the municipality where they live. This can be due to the presence of networks and relationships, which are located in the core municipality. Furthermore, it suggests that agglomeration economies decrease with distance. For example, knowledge could spill-over to a nearby municipality through employment mobility. However, other agglomeration economies may not spread so easily. Therefore it is

essential to establish a firm in a core region. By only taking into account employment, and more specifically commuting between municipalities, as a measure for the degree of agglomeration, other factors may have been overlooked.

Within the Randstad region agglomeration effects are expected in every municipality in the Randstad due to the high density. Therefore, the degree of agglomeration of a particular municipality does not influence the number of business start-ups. There are indeed (as hypothesized) no significant differences between core, suburban and rural municipalities in the Randstad with respect to the number of business start-ups. This means hypotheses 3 (including the sub hypotheses) cannot be rejected. Even though the results are as expected, it is remarkable that, compared to the Netherlands as a whole, it does not seem to matter for an entrepreneur where to start.

When comparing these results to the G4-G27 model, some consistent results can be noted. In the Randstad model core regions do not show significant more business start-ups compared to municipalities with a different degree of agglomeration. This is consistent with the findings for the G4, the four largest core municipalities within the Randstad. These four municipalities also do not show a significant higher business start-up rate. The spread of agglomeration economies through the Randstad is an explanation for these results. Entrepreneurs benefit from these externalities irrespective of their location within the Randstad. Another possible explanation is the presence of diseconomies of agglomeration within both the G4 model and the Randstad model, such as congestion, pollution and higher rent, making a location less attractive.

The suburban and rural municipalities are characterized by a relatively lower density. We expected here, in contrast to what is observed in the Randstad, that the degree of agglomeration does influence the number of business start-ups. Table 7.5 shows that both core and suburban municipalities have significantly more business start-ups compared to rural municipalities. Hypothesis 4a and 4c, stating that core and suburban have more business start-ups than rural, therefore cannot be rejected. Hypothesis 4b however, stating that core municipalities have more business start-ups than suburban, is not found to be significant. This means that core and suburban municipalities show no differences with each other, but compared to rural municipalities they do. We conclude that agglomeration in core and suburban municipalities provides positive externalities and favors the development of entrepreneurship.

Some consistencies can be noted regarding agglomeration and its effect on entrepreneurship. The outcomes suggest that higher degrees of agglomeration positively influence the number of business start-ups, however, with the exception of the G4 and the Randstad. The results for the G4-G27 on the one hand and the Randstad model on the other are also consistent. Highly agglomerated areas (either being G4 or core municipalities located in the Randstad), show no significant differences in business start-ups. This could be explained by the density of the area or the

diseconomies present in highly agglomerated areas. As the G27 municipalities are spread more evenly across the country, and are also classified mainly as core municipalities, the significant difference with respect to smaller municipalities, is conform the expectation. Core municipalities throughout the country, with the exception of the Randstad, display significantly more business start-ups compared to rural municipalities displaying the effect of the degree of agglomeration on the development of entrepreneurship.

The expected effects of the indicators of the knowledge economy were specified in hypothesis 5a to 5d and these indicators were included in all four models. The hypotheses suggest a positive influence of each of these variables on the number of business start-ups for all four models. As shown in Table 7.5, the number of the higher educated workers shows no significant result. This means that hypothesis 5a has to be rejected. The variable concerning the number of students in higher education also shows no significant influence on business start-ups, meaning that hypothesis 5b also has to be rejected. With respect to hypothesis 5d, the presence of a university also does not seem to influence the number of business start-ups positively. Consequently, hypothesis 5d also has to be rejected. Finally, hypothesis 5c, stating that the presence of small firms has a positive influence on the number of business start-ups, does not have to be rejected. The presence of small firms shows a positive and significant effect on the number of business start-ups.

For the model regarding the Netherlands indicators concerning the knowledge economy are consistent with the results of the city size model. This means that the proportion of the highly educated in the labor force does not influence the number of business start-ups. The variable reflecting the positive influence of the number of students in higher education also shows no significant influence. The same goes for the presence of a university. It has no influence on business start-ups. However, hypothesis 5c cannot be rejected; the number of small firms does show a positive and significant effect on the number of business start-ups.

Within the Randstad, different results were obtained concerning the effect of the indicators of the knowledge economy on business start-ups. Again a highly educated labor force shows no significant impact on the number of start-ups. However, the variable for the number of students in higher education does show significant results, meaning that hypothesis 5b cannot be rejected. Like in the previous models (city size and for the Netherlands), the presence of small firms shows a positive and significant influence on the number of start-ups. Finally, the presence of a university also shows a significant result, yet the influence is negative, therefore this hypothesis can be rejected.

In the Randstad model the knowledge economy seems of much greater importance compared to the two other models (city size and all of the Netherlands). Three out of four indicators show significant influence on the number of business start-ups in the Randstad. When comparing these results with the results for all of the Netherlands, it shows that for the



Randstad, the number of students in higher education has a positive and significant effect on the number of business start-ups, whereas in the model for the Netherlands, it is positive but not significant. Apparently, in the Randstad, entrepreneurship benefits from the presence of students in higher education.

The main contradiction in these results (in the Randstad model) is the positive influence of student in higher education on the one hand and the negative influence of the presence of a university on the other hand. The presence of a university is an indication of the concentration of knowledge, whereas the number of student suggests diffusion or spill-over of knowledge. A possible explanation for the negative influence of the university presence is that there are only a limited number of universities in the Randstad (6 out of 13), but these tend to be the bigger ones, which may employ a lot of the potential entrepreneurs.

Hypotheses 5a to 5d have also been tested for suburban and rural municipalities. The results in table 5 show different results compared to the previous models. For suburban and rural municipalities, the presence of small firms is also found to be positive and significant, but the proportion of students in higher education has no influence, as does the proportion of the highly educated workers. As hypothesized the presence of a university has a positive influence on the number of business start-ups in this model. This is in contrast to the relationship between the presence of a university and the number of business start-ups in the Randstad. Outside the Randstad, universities are likely to employ fewer potential entrepreneurs, and to function more as a source of knowledge spill-overs, contributing to an innovative climate and thus stimulating entrepreneurial start-ups. For example most business parks linked to universities are located outside the Randstad, where there is more a need for such parks (to create employment) and where space is more easily available.

The results concerning the control variables show consistency in all four models, with the exception of suburban and rural municipalities. Population growth has a positive and significant influence on the business start-ups per municipality. This indicates that an increase in the population can increase both the demand for entrepreneurial products, as well the supply of potential entrepreneurs. Per capita GDP also has a significant but negative influence on business start-ups. This might be because a high per capita GDP implies that wages are high, which increases the opportunity costs for entrepreneurship. Nascent entrepreneurs could therefore postpone the decision to engage in entrepreneurial activity. Moreover, higher wages imply that it is more expensive to hire employees, which can increase the costs for setting up a new business. The results of our models suggest therefore that these negative supply effects outweigh the positive effects, such as increased demand and access to capital.

Unemployment has positive and significant effects on business start-ups. This is due to increased supply of (necessity) entrepreneurs: more people are forced into self-employment. For the Randstad, unemployment growth had a negative and significant influence on the number of business

start-ups. Possibly a rapid increase in unemployment decreases the demand for products and services. Furthermore, similar to the effects of a higher GDP, opportunity costs for nascent entrepreneurs increase. When the newly started firm fails, it can be more difficult to find a new job when unemployment is high. Due to this risk potential entrepreneurs might postpone their decision to become self-employed.

Finally, population density positively influences the number of business start-ups in the suburban municipalities, as opposed to the other models. A reason for this could be that the density is already higher in other models (the city size and Randstad model) and as such density is not an additional advantage. The effect of population density in suburban and rural municipalities is consistent with the positive effect of urban agglomeration in this zone.

### **7.11 Conclusions**

Differences in the number of business start-ups are explained by focusing on the degree of agglomeration and indicators of the knowledge economy. The degree of agglomeration has a positive effect on the number of start-ups. Municipalities labeled as core, which is the highest degree of agglomeration, have significantly more business start-ups compared to other municipalities. This emphasizes the importance of agglomeration economies on entrepreneurship development.

When the Netherlands is divided, in the Randstad on the one hand and suburban and rural municipalities on the other, differences emerge. The most remarkable finding is that, even though agglomeration economies are present in the Randstad and (positively) affect business start-ups, these externalities are spread across the whole Randstad instead of being confined to a particular agglomeration. In the Randstad it is of less importance for entrepreneurs to be located within an agglomeration to benefit from all kinds of externalities. In suburban and rural municipalities, however, location is of great importance. There are significantly more business start-ups in agglomerated areas.

To understand the effects of the knowledge economy on entrepreneurship several indicators were used. The high presence of small firms in a municipality shows a positive and consistent effect on entrepreneurship. This is a strong indicator of the importance of a knowledge economy. The remaining indicators, however, show inconsistent and predominantly non significant results. There is no consistency in the relationship between the indicators of the knowledge economy and entrepreneurship. Additional indicators would be required, but such data are not available at the municipal level at the moment.

The most convincing indicator of the knowledge economy that was statistically significant in three of the four regressions was the small firm presence. The importance of this factor is also mentioned by Glaeser et al. (2010b), Saxenian (1994), Sternberg and Wennekers (2005). This study has given some indications of these spatial differences. More data at the

municipal level would be required to check the role for start-ups of spatial characteristics such as the qualities of a specific location, local infrastructural investments and the presence of innovative industries.

The conclusion is that agglomeration is important for business start-ups in the Netherlands, although it is even more important for those who started outside the Randstad. In the Randstad all indicators available for the knowledge economy were statistically significant, except for the number of higher education students, while in the other cases only the number of small enterprises already there systematically influenced the number of start-ups in a positive and statistically significant way. Features of the local economy, or what Glaeser et al. (2010a) call spatial differences, may be more important. We have pointed to the importance of specific features, such as urban diversity and other economies or (dis)economies than agglomeration.

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## **Chapter 8: Car makers and regional upgrading in Central and Eastern Europe: A comparison of Renault and Hyundai-Kia**

**Erwin van Tuijl**

### **8.1 Introduction**

Economic development is dynamic in time and space, which has been conceptualized in Van den Berg et al.'s (1987) seminal work on "spatial cycles". In brief, this approach stresses that regional development is cyclical in nature and that regions swing from periods of population and income growth to decline and back to growth. In addition, the concept argues that regions with a specialized industrial structure develop according to the life cycles of the major industries. For example, Wolfsburg and Detroit develop according to cycles of approximately five years following the automotive industry.

The automotive industry is an interesting case for analyzing spatial dynamics for at least two reasons. Firstly, already before the credit crunch, automotive production began to shift from traditional centres in Western-Europe, Japan and Northern-America to new production locations in Eastern Europe, Asia and Latin America (Haak, 2005). This is not only caused by differences in factor costs, but also by a shift in demand. That is the traditional markets are becoming saturated while in emerging countries there is a growing demand for cars (Becker, 2006). As a consequence, but with major exceptions like Munich's luxury car cluster, traditional clusters like Detroit and Paris are declining, while new ones like Shanghai and Sao Paulo are on the rise (Van Winden et al., 2010).

Secondly, the automotive industry has a complex geography with interaction within and between different spatial scales. For instance, car makers have global sourcing strategies for small and simple parts, while certain engineering activities are highly concentrated in clusters (Sturgeon et al., 2008). Within this complex geography, car makers can influence regional development in various nodes of their global network (Coe et al., 2004) through the transfer of various production factors from one location to the other. Van den Berg et al. (1987) already mentioned the internationalization of capital, raw material suppliers and certain types of labor as important external drivers of regional development. Nowadays, knowledge is another important factor for regional development (e.g. Van den Berg et al., 2005), and knowledge transfer takes place within as well as between regions (e.g. Bathelt et al., 2004). Car makers increasingly access knowledge sources across borders as firms try to diversify their core capabilities and acquire complementary resources via their global networks (Rycroft and Kash, 2004). As such, car makers act as bridges between regions and can contribute to regional development via the transfer of strategic assets.

In this chapter, we show how and why foreign car makers contribute to regional upgrading in Central and Eastern Europe (CEE). Regional upgrading can be defined as 'learning and knowledge development in order to generate value added' (Ernst and Kim, 2002; Humphrey and Schmitz, 2002; Giuliani et al., 2005a) and can be perceived as a major requirement to enter a (new) period of growth. Using a spatial-evolutionary perspective, we divide the investments of foreign car makers in new production locations in CEE into various stages. In each stage, we analyze the implications of the investments for regional upgrading in CEE and the relations with the home base and other parts of the firm's network. We pay attention to upgrading of the car makers' subsidiaries in CEE, upgrading of domestic suppliers, and upgrading of the regional educational infrastructure. We focus on two empirical case studies of Renault in Romania and Hyundai-Kia in Slovakia and the Czech-Republic. Renault bought the outdated facilities of Dacia in Romania and invested in modernization and upgrading of the Romanian automotive industry. Hyundai-Kia invested in new production facilities in Slovakia and the Czech Republic in order to produce the cars that have been developed for the European market. The empirical data comes from two Euricur studies. One deals with the role of manufacturing in the knowledge economy and the other one analyses the role of design in urban development<sup>89</sup>.

The rest of this chapter is structured as follows. Section 2 discusses the theoretical background of the concept of upgrading and derives theoretical expectations. Section 3 discusses the two cases studies separately and the final section (section 4) compares the cases and draws conclusions.

## 8.2 The concept of upgrading

The concept of upgrading has been discussed in three major fields. Firstly, within development studies, the technological capabilities and upgrading approach discusses how local suppliers in developing countries obtain technical skills required to supply to global markets (e.g. Lall, 1992). Secondly, the management literature analyses upgrading of individual firms in order to improve their competitive position (Porter, 1990). Finally, studies within economic geography deal with regional upgrading via global connections with other regions, analyzed with concepts such as global value chains or global production networks that enable knowledge transfer within and between regions (e.g. Humphrey and Schmitz, 2002; Giuliani et al., 2005a,b; Coe et al., 2004). In all cases, an upgrading strategy aims to generate value added and to move from the low road of competitiveness (e.g. price competition) to the high road (like design or marketing) (Giuliani et al., 2005a; Chaminade and Vang, 2008). As such, it is closely related with innovation, but innovation does not necessary lead to upgrading as competitors may be more innovative. Therefore, upgrading needs to be seen as a relative result of innovation (Kaplinsky and Readman, 2005).

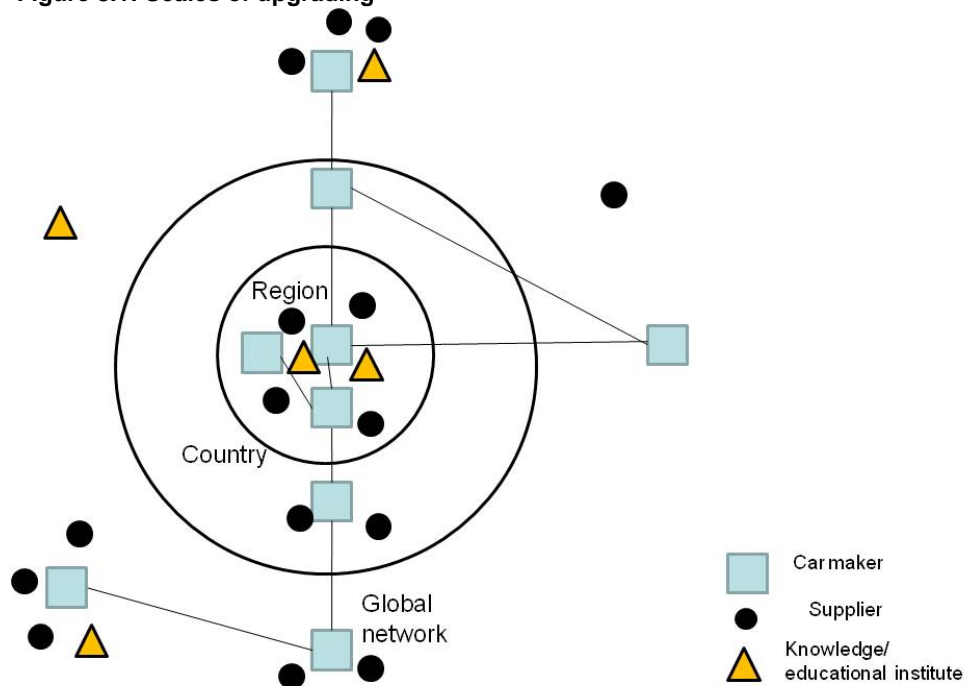
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<sup>89</sup> See Van Winden et al. (2010) and Van Tuijl et al. (2012a) for more information about the case of Hyundai-Kia and Van Tuijl et al. (2012b) for the Renault case.

There are different types of upgrading (Humphrey and Schmitz, 2002): i) product upgrading (making higher valued products); ii) process upgrading (using more efficient production processes); iii) functional upgrading (performing higher value added functions, like design instead of assembly); iv) inter-functional or chain upgrading (firms apply their skills in sectors that generate higher value added; e.g. battery producers that supply to car makers needed for electric vehicles). Even though this typology has been widely used, it is difficult to distinguish them separately as they are related with each other (Ponte and Ewert, 2009). For instance, the shift from cars driven by traditional combustion engines to electric vehicles does not only require skills from other industries, e.g. electronics, but also adaptations to the production process and the body shell of the car. Thus, a combination of inter-sectoral, process and product upgrading is needed to realize this shift.

In addition, upgrading can take place on various spatial and organizational levels (Gereffi, 1999; Coe et al., 2004; Van Tuijl et al., 2012a) (see figure 1), ranging from local to global and from within a single subsidiary to networks between (lead) firms and knowledge institutes and other firms. Car makers play a crucial role in regional upgrading of subsidiaries, suppliers and knowledge institutes due to their global networks enabling them to obtain knowledge at various locations and to transfer it from one place to the other. Especially foreign car makers are important for realizing regional upgrading, as argued by Barnard and Tuomi (2008: p. 650): “Foreign firms enhance upgrading precisely because those firms tend to be more competent and able to challenge local practices and expectations, and thus accelerate the shift to more complex activities”.

**Figure 8.1: Scales of upgrading**





Source: Own elaboration

However, upgrading is often difficult to realize (Lorentzen and Barnes, 2004) and in many empirical studies it is limited to product and process upgrading, while more advanced types of upgrading take place in a late investment stage or do not occur at all (e.g. Coe et al., 2004). The degree and way of upgrading differs per industry (Giuliani et al., 2005a) and is dependent on many factors, such as the type of chain governance (Humphrey and Schmitz, 2002); the dominant knowledge base (Van der Borg and Van Tuijl, 2011); the presence of linkages between local suppliers and global buyers (Ernst and Kim, 2002); the knowledge strategy of the car maker (Van Tuijl et al., 2012a); the availability of specific regional assets (Liu and Dicken, 2006); and the learning capabilities of local firms (Ernst and Kim, 2002). Furthermore, it is argued that upgrading requires the acquisition of specific skills and knowledge that takes place via interactive learning (Chaminade and Vang, 2008) and monitoring of competitors (Porter, 1990). Therefore, upgrading is spurred by an environment that stimulates interactive learning and by the presence of specific regional assets such as market and technical knowledge or skilled workers (Ernst and Kim, 2002).

Based on this section, we define upgrading as “a process of learning and knowledge development in order to generate value added”. We expect that car makers first invest in upgrading of their own subsidiary and in later moments in upgrading of suppliers and knowledge institutes. Similarly, we expect that car makers first contribute to product and process upgrading, and that investments in more advanced types of upgrading (functional and inter-sectoral) may be reserved for a later phase of development.

In order to test these theoretical expectations, we empirically analyze how Renault and Hyundai-Kia contribute to regional upgrading in Central and Eastern Europe (CEE). We divide the investments of these car makers into various stages (see table 8.1, and 8.2)<sup>90</sup> and in each stage we analyze the type of upgrading (product, process, functional and inter-sectoral) that takes place, and to what extent the car makers contribute to upgrading of i) their own subsidiary, ii) domestic suppliers, and iii) knowledge institutes. In addition, we analyze the rationale of the location of the investments, and the spatial relations between the new facilities in CEE and the home base and other parts of the firms' networks.

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<sup>90</sup> The investment stages are based on our empirical findings and inductive reasoning. Note that the stages may partly overlap. Especially, upgrading of the educational infrastructure in order to increase the quality of the labor pool may start during earlier investment stages.

## 8.3 Regional upgrading in CEE

### 8.3.1 Renault and regional upgrading in Romania

Renault has played a key role in the modernization and regional upgrading of the Romanian automotive industry. This happened in various investment stages, making the facilities in Romania the most advanced in the Renault network outside its home base in Paris. Table 1 summarizes the types of upgrading, the upgraded actors and the location and rationale of the investments per investment stage by Renault.

**Table 8.1: Renault's investment stages and contribution to upgrading in Romania**

Investment stage	Type of upgrading and actors	Reason and location of the investments
Take over Dacia plant	Product and process upgrading of own subsidiary	Improve product quality and production process In Pitesti
Follow sourcing and development supplier park	Product and process upgrading of domestic suppliers	Guarantee the required quality of parts and systems Reduce cost Mostly in Pitesti region; in proximity of the Dacia plant
Investments in more advanced functions	Functional upgrading of own subsidiary	Investments in design, training and engineering facilities in order to develop cars for CEE Engineering in Pitesti, but also in Titu and Bucharest Design in Bucharest Testing in Titu
Strategic cooperation with knowledge institutes	Upgrading of knowledge and educational institutes and labour pool	Labour pool development and talent spotting Introduction of design Knowledge institutes all over Romania

#### Stage 1: Take over and upgrading of Dacia facilities

In the first stage, Renault entered the Romanian market via the takeover of the former state-owned car producer Dacia in 1999. The French car maker was seen as the natural partner by the Romanian government, as already in the 1960's Dacia started producing cars under the license of Renault. Therefore, Renault obtained a 51% equity stake in the Romanian car producer, which gradually increased to 99.3% in 2004. The French car maker on its turn was interested in the Dacia facilities to get access to the growing market in CEE, the possibilities to produce vehicles in the low cost segment and to get tax benefits. In addition, the Romanian and French culture is related - referring to similarities in the language as well as in

(business) values and norms - which favors an investment in Romania above other countries in CEE with less strong cultural ties. In this first stage, Renault has modernized the production facilities and invested in training and modern production technologies. Hence, it has contributed to product and process upgrading of its newly obtained subsidiary in Pitesti, the home base of Dacia.

### **Stage 2: Follow sourcing, supplier park development and upgrading of suppliers**

Indirectly, and in the second stage, the upgrading effect is much higher via follow-sourcing and the development of a supplier park next to the Dacia plant in Pitesti. To save costs, Renault asked its French suppliers to set up production facilities in Romania and invested in a supplier park which was opened in 2004. In total, 26 suppliers followed Renault to Romania of which 7 are located in the supplier park. Renault stimulated its suppliers to recruit locally, especially former Dacia workers. Furthermore, Renault trained local suppliers in order to obtain the required quality standards and to establish a long term relationship.

The development and upgrading of the local supplier base seems to be a success, seen the high local content rate of 65% for the Logan model in 2009, which is even expected to rise to 80% (Fuss et al., 2010). The suppliers in Pitesti do not only supply to the Dacia plant, but also to other plants in the Renault network<sup>91</sup>, suggesting further evidence of successful upgrading of Romanian suppliers.

### **Stage 3: Investments in more advanced functions of the own subsidiary**

In the third stage, Renault contributes to functional upgrading, via investments in R&D, design and training facilities, enabling its Romanian subsidiary to do more advanced functions than production only. More concretely, it has invested in Renault Technology Romania (RTR) with engineering centres in Pitesti, Bucharest (120 km from Pitesti) and Titu (80 km from Pitesti) in 2006; a concept design centre in Bucharest in 2007, and the Automobile Academy in Bucharest and a test centre in Titu in 2010. These new facilities are seen as complementary to the home base and focus on the market in CEE. For instance, the engineering and testing centre consists of 100 benches and 10 different test tracks used for vehicles and components developed or adapted for cars in CEE and complements the Aubevoye and Lardy test centres in France (Renault, 2010). The same is true for the design centre, which focuses on designing car models matching the consumer requirements in CEE, which cannot be done at a distance in France.

### **Stage 4: Upgrading of the labor pool and educational infrastructure**

In the final stage, Renault plays a major role in upgrading of the labor pool and the educational infrastructure. This happens not only via on-the-

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<sup>91</sup> For instance, Renault increasingly replaces its local French suppliers in Paris by Romanian ones who deliver from the Pitesti region (Van Winden et al., 2011).

job training (which has been done since the first stages), but also via its Automobile Academy, which provides courses to develop management, commercial and technical skills for the auto industry. In addition, Renault supports universities all over Romania via donations of computers and other equipment, and provides (guest) lectures, workshops and internships. In these educational activities, Renault presents the specific challenges a modern car maker has to deal with, and covers various fields, including HR, engineering, management and logistics. These challenges are translated into concrete business cases that are discussed in seminars, which function as important platforms to find new talent. Especially, for engineering Renault has narrow cooperation with universities and the car maker is directly involved in the development of their master programmes. It does not only focus on students, but it also trains professors in order to coach students in a way that is in line with the requirements of the car maker.

Renault plays especially an important role in the introduction and development of car design skills, which can be regarded as an example of functional upgrading. Car design is a relatively new discipline in Romania as in the communist time the focus was on engineering while the design sector was limited to traditional fields such as painting. By way of illustration, the car maker could not find suited Romanian clay model suppliers as clay modeling is a new activity in the country. Therefore, two French clay model suppliers followed Renault to Bucharest. French experts of these suppliers and of Renault train their Romanian colleagues in how to work with clay and how to make models, which can be seen as a further example of upgrading. This also happens by the donation of 3D technology, computers and clay to design schools/universities, so students can work with 'modern' materials and equipment.

Finally, regarding the spatial division of the investments we identified four reasons why Renault strategically opened its concept design centre in Bucharest and not in Pitesti (next to production and engineering facilities) or Titu (where the engineering and testing facilities are based). Firstly, the vibrant downtown location of the design centre in the Bucharest offers an important environment where car designers can get insights in consumer trends and to obtain creativity. This is possible due to the large concentration of consumers and other cars, just like the relatively large cultural supply of the capital city compared to the more peripheral places of Pitesti and Titu. Secondly, the presence of the two airports makes it possible to travel quickly to the headquarters in France and other major nodes in Renault's network. Thirdly, the design centre is in physical proximity to its engineering centre, which is crucial for face-to-face meetings between designers and engineers. A final reason is the knowledge infrastructure, consisting of design and engineering schools that are important for guaranteeing the supply of qualified workers. Moreover, students are used to 'feed the creative process' as they are still fresh and come with original ideas without being hindered by legal and technical constraints.

## Summary

In sum, this case illustrates that Renault has contributed to all types of upgrading in Romania. This upgrading process happens in various stages, starting with product and process upgrading by investments in the production centre in Pitesti and ending with functional upgrading by investments in more advanced functions, such as engineering, testing and design. Regarding the spatial dynamics, two major observations can be made. Firstly, Renault has invested in three different nodes based on the regional assets: production and engineering in Pitesti; testing and engineering in Titu and design, training and engineering in Bucharest. Secondly, the Romanian activities largely complement the home base, but partly compete as well. The headquarters remains the centre for basic research and strategic management, functions which are missing in Romania. The new activities in Romania focus on development, design and production of cars for the market in CEE, whereas the home base serves the (declining) market in Western-Europe. However, we have seen that the suppliers in Pitesti to a certain extent (depending on the complexity and transport costs of car parts and modules) take over production activities from the Paris cluster. In addition, it is not clear to what extent the Logan, which is largely developed and produced in Romania, complements or competes with certain models produced in the home base, especially in times of crisis when the demand for low costs cars increases.

### 3.2 Hyundai-Kia and regional upgrading in Slovakia and the Czech Republic

The Korean Hyundai Group (which includes Hyundai and Kia) entered the European market via different investment stages with various implications for regional development and upgrading, as is summarized in table 8.2.

**Table 8.2: Hyundai-Kia's investment stages and contribution to upgrading in Slovakia and the Czech Republic**

Investment stage	Type of upgrading and actors	Reason and location of the investments
Investments in European headquarters, R&D and design centres	–	Exploration the European market. Frankfurt region
Investment in production facilities in CEE	Process upgrading of subsidiary	Guarantee product quality Žilina and Nošovice
Follow sourcing and upgrading domestic suppliers	Process upgrading domestic suppliers	Guarantee product quality In proximity of production plants
Strategic cooperation with knowledge institutes	Upgrading of knowledge and educational institutes and labour pool	Training of local workers to get cost benefits Knowledge institutes in the regions of the car plants

**Stage 1: Investments in headquarters, R&D and design centres**

As a first step, Hyundai-Kia invested in a design and engineering centre in Frankfurt (Germany) in order to discover the European market, which is totally different from the home base in Korea. By way of illustration, the firm's current chief designer worked for BMW before and knows the European customer requirements. Frankfurt has been selected as R&D and design hub due to the proximity of other car makers (e.g. Opel in Russelsheim), the skilled labor force, the Frankfurt Motor show, and the good international accessibility enabling Hyundai-Kia employees to travel quickly to the different European countries as well as to the home base.

In a later part of this stage the car maker opened its European headquarters and new R&D and design facilities in Russelsheim in 1997. These new facilities are located about 40 km from its earlier R&D centre, and once again, the major tasks are exploring market and consumer trends in Europe and the development of specific car models that fulfil the needs of the European customers and (safety) regulations. Overall, for Hyundai-Kia, this stage is mainly about exploiting the market and skill base rather than contributing to upgrading.

**Stage 2: Investment in production facilities in CEE**

In the second stage, Hyundai-Kia opened a Kia plant, a training centre, and a test track with a total length of 3.3 km in Žilina (Slovakia, 2005), as well as a Hyundai plant in Nošovice (Ostrava region in the Czech Republic, 2008), in order to produce cars for the European market. This investment is seen as the final strategic step of having R&D, design, management and production in each geographical market<sup>92</sup>.

The two locations have been selected as production location for a number of reasons. Firstly, the presence of other car makers and a tradition in car manufacturing and engineering provides access to a specialized labor pool and supplier base. The Kia plant is located only 30 km from VW's Martin plant (Jacobs, 2011), while the Hyundai production centre is in proximity of Tatra - one of the oldest truck producers in CEE – as well as its sister plant belonging to Kia. Both plants are located in a larger automotive cluster in CEE, which covers plants of seven different car makers and a large number of suppliers (Van Winden et al., 2010). Secondly, the central position in Europe gives access to the traditional markets in Western-Europe as well as the rapidly rising markets in CEE. Thirdly, the locations offer cost advantages due to relatively low factor costs compared to Western-Europe and the home base, and the car maker further benefits from state subsidies and investments in infrastructure improvement, which is important for logistics. Both the Slovakian as well as the Czech

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<sup>92</sup> This means per continent. Hyundai has its global headquarters, a number of production plants and major R&D and design centres in South Korea. Outside its home base, Hyundai has 'regional' headquarters in nearly each continent (like the Dubai headquarters for Africa and the Middle East), and production plants spread across the world in Europe, the United States, China, Vietnam, Venezuela, Brazil, India, Turkey, Russia, Malaysia, Sudan and Indonesia. In addition, it has several R&D and design centres in Europe, the United States and Japan (Van Winden et al., 2010).

government offered subsidies and other incentives to attract the car maker, hoping to generate employment.

Hyundai-Kia's role in this stage is limited to process upgrading as it mainly invests in modern production technologies and training of employees. More advanced types of upgrading are not likely to occur as the focus of Hyundai in CEE is mainly on production. Apart from the production facilities, investments are done in a training centre and a testing track. Testing work needs to be done in the market and in proximity to the production facilities. Basic research and design has been done in Frankfurt, which also becomes clear by a new investment in a specific Kia design centre in Frankfurt in 2007. This design centre is located in downtown Frankfurt, near the conference centre where the famous Frankfurt Auto Show is organized every year.

### **Stage 3: Follow sourcing and supplier upgrading**

Indirectly, and as a third stage, the (process) upgrading effect is even larger than in the second stage due to the arrival of Korean suppliers which are requested by Hyundai-Kia to open facilities in CEE in order to guarantee the required quality of car parts and systems. As a consequence, at least 14 Korean suppliers have opened plants in proximity to the Kia and Hyundai plants. Two of them, the module suppliers Mobis and Daymos are even located on the Hyundai site for logistical reasons. Some other suppliers, including Donghee (a fuel tank supplier) and Hysco (a steel plate producer) have opened plants in both the Ostrava as well as the Žilina region in order to directly supply the Hyundai respectively the Kia plant.

The investments done by suppliers are important for regional development for employment reasons, but also in terms of process upgrading. Just like Hyundai-Kia, also the Korean suppliers prefer using domestic workers for cost reasons and train them to get the required skills. This effect is even larger, as suppliers may also train employees of domestic lower tier suppliers. For instance, Sungwoo Hitech, a car body supplier, is using domestic part suppliers and trains them in order to make sure that the firms reach the required quality level.

More advanced types of upgrading by the Korean suppliers seems to be limited as they also focus on production, while keeping R&D functions in the home base (e.g. the suppliers Dymos, Hysco and Donghee do this). Some suppliers, such as Mobis, a chassis producer, have followed Hyundai-Kia by opening an R&D centre in Frankfurt, giving also limited potential for functional upgrading in CEE. A major exception, however, seems to be Sungwoo Hitech which announced its intention to invest in an R&D centre in Ostrava for adapting car bodies to the European market.

### **Stage 4: Upgrading of the labor pool and educational infrastructure**

In the final stage, Hyundai-Kia plays a major role in regional upgrading of the labor pool and the educational infrastructure. It prefers using local employees rather than Korean ones for costs reasons, explaining for instance that 96% of the workers in the Nošovice plant is Czech, of which most come from the region. Training takes place in various ways and

places, including in an own training centre of Kia near the Žilina plant (opened in 2005); on the job in the Nošovice as well as the Žilina plant; in external training centres all over Europe, China, India, Turkey and South Korea and in its R&D facilities and headquarters in South Korea. Apart from a general one week entry course for all new employees of Kia, the company offers different training courses ranging from highly specialized task-oriented training for engineers to training with general applicability such as management. Hyundai offers similar courses to develop engineering skills as well as soft skills such as management and marketing.

Besides these own training activities, the Korean carmaker cooperates with regional educational institutes in order to train and to select students. Hyundai has relations with the Technical University Ostrava, Business Schools in Karvina and Ostrava, and with various secondary schools in the region, and Kia with Žilina University and with regional secondary schools as well. Cooperation takes various forms, all aiming to increase the quality of the labor pool. Firstly, both firms donate cars and car parts to technical educational institutes in order to be a 'good neighbor', but also to serve as practical training material to improve the practical skills of students. Secondly, Kia organizes regularly, two-hour plant tours for students to give them more practical insights about the production process and the supporting activities related with car production, such as logistics and procurement of car parts. Thirdly, Kia offers scholarships and organizes competitions for students. For instance, the so-called 'Kia Innovation Award' is targeted to vocational secondary school students from the Žilina region. Teachers from Žilina University are members of the judge panel during this competition.

### **Summary**

All in all, this case shows that Hyundai-Kia has entered the European market in various steps, starting with R&D, design and management in Germany and ending with production and testing facilities in CEE. Due to the geographical division between production and more advanced activities, upgrading in CEE is limited to process upgrading, which mainly takes place in the form of training of employees. Process upgrading has not only been realized via the investments by Hyundai-Kia, but also due to follow suppliers, who train their own workers as well as workers of domestic suppliers. Finally, Hyundai-Kia contributes to process upgrading via cooperation with local educational institutes via donation of cars and car parts as educational material and other ways of support in order to train and get in touch with students.

### **8.4 Conclusions**

In this chapter we have analyzed how foreign car makers contribute to regional upgrading in CEE via the empirical case studies of Renault in Romania and Hyundai-Kia in Slovakia and the Czech Republic. Table 3 compares the two cases in terms of the strategy used, the supplier strategy, relations with knowledge and educational institutes and the impact on regional upgrading. The strategy of the car makers differs, which has



implications for the degree of upgrading and the spatial dynamics. Renault bought the outdated car plant of Dacia in order to extend its activities to CEE. It started with product and process upgrading of its own subsidiary via investments in modern production facilities and training of the regional labor force. In later stages, it also contributed to upgrading of suppliers and knowledge institutes (especially product and process upgrading), as well as to functional upgrading of its own subsidiary via investments in more advanced functions. Hence, the strategy of Renault is in line with our theoretical expectations. Hyundai-Kia, in contrast, started with investments in design and R&D facilities in Germany in order to exploit the European market. Only in a later stage, the Korean car maker invested in production facilities in CEE, whereby its contribution to upgrading in CEE concerns mainly process upgrading via training of the regional labor force. Hence, both the order of the investment stages differs, as well as the spatial dynamics with concentration of activities in Romania (Renault), and the separation of R&D and design on one hand and production on the other in the case of Hyundai-Kia.

Despite these differences in the strategies of the car makers, we have also observed some major similarities concerning the investment in the production location. Both car makers have invested in 'automotive regions', i.e. regions with a history in automotive production. This gives them access to a specialized labor pool and a supplier base. The investments by the foreign car makers give 'new life' to the automotive regions, confirming that regions indeed develop according to cycles (Van den Berg et al., 1987). Secondly, the car makers benefit in both cases from state subsidies and other incentives such as infrastructure development and tax discounts, which is illustrative for the high competition between the States in CEE. This is a large contrast with China, where the State controls market access and can set upgrading criteria for foreign car makers (Liu and Dicken, 2006; Van Tuijl et al., 2012a).

Concerning the supplier strategy, both car makers use a follow sourcing strategy meaning that the foreign car makers ask their suppliers from the home base to open subsidiaries in CEE as well. They do this in order to safeguard a good product quality and to benefit from low production costs. This follow sourcing strategy is not only important for job creation in CEE, but also for (process and product) upgrading of domestic suppliers and workers as the car makers and the foreign suppliers train local employees which are cheaper than foreign workers. In addition, the foreign suppliers search for domestic suppliers and train them to deliver the required quality.

Also regarding the relations with knowledge and educational institutes, the two car makers show important similarities. Both play an important role in upgrading of the labor pool and educational infrastructure via donations of cars, car parts, clay models and other equipment. In addition, the car makers organize seminars and tours in the plants in order to introduce students to the 'world of automotive production' and to spot talent. Renault and some of its suppliers are especially important for the development of car design, a relatively new discipline in post-communist Romania.

Finally, the case studies give some more insights in the geography of the value chain and the implications for regional development. Despite the spatial separation of R&D and design on the one hand and production on the other in the case of Hyundai-Kia, we have seen that testing work and adaptive development needs to be done in the market and nearby the production facilities, explaining Hyundai-Kia's investment in a testing track in Žilina. Similarly, Renault has opened a testing track in Titu, about 80 km from the production centre in Pitesti. This is in contrast with concept design, as in both cases the concept design centres are opened in vibrant downtown locations – Bucharest in the case of Renault and Frankfurt for Hyundai-Kia. The downtown locations work as vibrant and inspiring environments for car designers due to the large concentration of consumers, cars, other creative industries and competitors. In addition, in both cases we have seen that basic research and control functions remain concentrated in the home base of the car makers. This puts a limit on the degree of upgrading and makes the development of the regional automotive industry dependent on decisions elsewhere, which may be a challenge in case the region enters into a declining phase of the spatial cycle. Literature has shown that subsidies and other forms of government support do not guarantee success on the long run as car makers may close down their plants again, despite large sunk costs (Holweg *et al.*, 2004).

**Table 8.3: Comparison of Renault and Hyundai-Kia and their contribution to regional upgrading in CEE**

	<b>Renault in Romania</b>	<b>Hyundai-Kia in Slovakia and Czech Republic</b>
Type of investment and strategy	Take-over of an outdated car plant in CEE, followed by investments in new production technologies and later in R&D and design facilities	Investment in R&D, design and headquarters in German automotive cluster, followed by greenfield investments in production facilities in automotive cluster in CEE
Effects investment on regional upgrading in CEE	High; product and process upgrading followed by functional upgrading	Limited; mainly process upgrading
Supplier strategy and impact upgrading	Follow sourcing and development supplier park Renault upgrades local suppliers	Follow sourcing and co-sitting Korean suppliers upgrade local suppliers
Upgrading knowledge institutes and labour force	Donation of equipment to schools and involvement in education	Donation of cars and parts to schools and organisation of seminars

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## Chapter 9: The Euricur inspiration: South Scandinavian Metropolitan Growth Perspectives

### Christian Wichmann Matthiessen

This chapter gives a couple of South Scandinavian examples of metropolitan growth issues. The first example is shortly on organizing capacity for Greater Copenhagen and the second is a little more elaborated about the cross-border regional development of the Öresund Region following opening of the bridge between Denmark and Sweden. Both are on consequences from inspiration flowing from the Erasmus University Rotterdam based Euricur group in Rotterdam under the leadership of Professor Leo van den Berg.

First a few words on the result of the first project where we and others worked together on a European project: “The costs of urban growth” which produced hundreds of working documents but only one solid publication on the issue of urban growth, namely “Urban Europe. A Study of Growth and Decline” (Berg, Drewett, Klaassen, Rossi & Vijverberg 1982). In this book the Urban Europe group presented the theory of growth and decline of functional urban regions. They claimed that urban development followed a life-cycle type of sequences of spatial development and that links exists between the cycle and the level of economic development. The urban life cycle was associated with four main stages: 1) urbanization, which under the industrialization process favored the existing towns as optimal locations for manufacturing industries and where population migrates from hinterland to the cores where jobs and higher income can be found, 2) suburbanization, where the urban pattern is consolidated and the quality of services and facilities are improved, and where population relocate from core or hinterland to suburbs within the functional region partly due to growing income, 3) desurbanization, where shifts of population and production units lead to urban sprawl and where the large functional urban units loose population due to negative externalities, and 4) reurbanization, where the central cities again becomes attractive because of de-manufacturing and shifts to dependency on the production of information and innovation demanding face to face contact combined with urban renewal. This theory or model of growth is understandable in its simplicity, and it is provocative in the way it presents urban growth as an almost biological process, which leaves little room for strategies and politics.

Since the book on urban growth and decline was published the European Institute for Comparative Urban Research (Euricur), its forerunners (as the above mentioned Urban Europe group) and its partners have spent a lot of energy showing that urban growth is not a biological process, but a process which can be influenced by leaders of cities and thus by decision makers such as supra-national, national and regional authorities, chambers of commerce, real estate developers and investors, urban marketing organizations and the academic world. Euricur has responded to the increasing need for information that broadens and

deepens the insight into the complex process of urban development. Contradictory to the theory of growth and decline cities do not operate in a fixed framework, but in a unique political, economic, cultural and demographic context. In its research activities Euricur has pointed on numerous issues that are related to urban management and urban development such as governing metropolitan units (Berg, Klaassen & vd Meer 1990, Berg, Klink & vd Meer 1993), the establishment of organizing capacity (Berg, Braun & vd Meer 1997, Berg, vd Meer & Pol 2001), respond to the emerging information and knowledge economy (vd Berg, Pol & Winden 2007, vd Berg et al 2012), the strategic position of cities (Berg, Braun & vd Meer 1998), how cities can organize place marketing strategies (Braun 2008), safety and security in cities (vd Berg et al 2005), the importance of manufacturing in the new urban economy (vd Berg et al 2010), how to develop cross-border cooperation (vd Berg et al 2008), and under what conditions urban regions and clusters grow (vd Berg, Braun & Winden 1999, vd Berg, vd Meer & Braun, 1997).

The competitive position of Greater Copenhagen can be illustrated by a few figures of 2009. The population of 1.8 million inhabitants gives a modest European rank as number 32, but Copenhagen is an affluent city and measured by gross regional product the rank is 21. Position in international networks are excellent and the international traffic on the airport gives the European rank as number 13, and when it comes to the research output measured as papers in international scientific journals on medicine, science and technical research 2008-2010 the rank is 17.

### **9.1 Organizing capacity for marketing of Greater Copenhagen**

The research and conciliation of the Euricur group has been an eye-opener for researchers from many cities, between them the group of researchers working with metropolitan growth strategies out of a South Scandinavian perspective. We have used the inspiration from Rotterdam together with inspiration from other sources first and foremost the works of Professor Åke E. Andersson (1985a & b, Andersson, Andersig & Hårsman, 1990) as base for series of analysis of Greater Copenhagen's competitive position and we have pointed out different strategic issues which has been analyzed and presented by us. In the late 1980ies a government commission gave advice on how to push Copenhagen forward and create new and dynamic economic growth. My advice was to create new organizing capacity in the form of strong Greater Copenhagen based organizations for attracting tourists and international capital. Such organizations were established 1992. Wonderful Copenhagen of 2013 today is a large public private partnership, which develops practical, value-generating projects in the cruise industry, with international congresses, in holiday tourism, and other areas where tourism generates growth and development for the Capital City Region. Wonderful Copenhagen also takes care of the brand of Copenhagen as tourism destination. When initiated only a handful of people were engaged in the effort. 2012 the turnover comes to around 20 mio. Euros and the organization is considered to be a

global bench marker for incoming tourism bureaus. Copenhagen Capacity is the Danish Capital City Region's official organization for investment promotion, business development and cluster growth. The organization wants to strengthen the region's international competitiveness, market its strongholds internationally, and improve framework and factor conditions for businesses, cluster organizations and international talent. Copenhagen Capacity has a similar history as Wonderful Copenhagen initiated on very small forerunners and has grown to a 2012-turnover of around 6 mio. Euros. Professor Leo van den Berg has been advisor especially to Wonderful Copenhagen and has set his mark on the organization. Leo van den Berg has also played a role as inspirator when it comes to the large scale strategic issue of South Scandinavia, namely the development of the Öresund Metropolitan Region. In the following part of this chapter I am going to present the strategy of lifting the level of the South Scandinavian metropolitan unit using large scale infrastructure investments as the tool.

## 9.2 Missing Links

The European Round Table of Industrialists identified in the 1980ies 14 missing links in the transportation network of the continent. By that they set the agenda for the EU's part-funding of strategic cross boundary Trans-European Transport Network (TEN-T) infrastructure as key deficiencies and bottlenecks holding back the development of the Single Market. This EU investment includes motorways, high-speed trains, bridges, and tunnels (Knowles & Matthiessen 2009; Matthiessen & Knowles 2011). TEN-T aims to reorganize the dynamics between spaces, cities, and regions, and release the latent potential for transnational mobility. Cross-border bridges and tunnels across short-sea barriers have particularly significant meaning as they allow large-scale commuting and daily interaction between locations which previously took too long to access. Many international fixed links cross river boundaries (such as the Rhine between France and Germany), or tunnel through mountain barriers (such as the Alps between France and Italy). On a much larger scale, the Channel Tunnel was Europe's first international fixed link to cross a major strait with its twin rail tunnels linking Great Britain and France since 1994 (Knowles 2006).

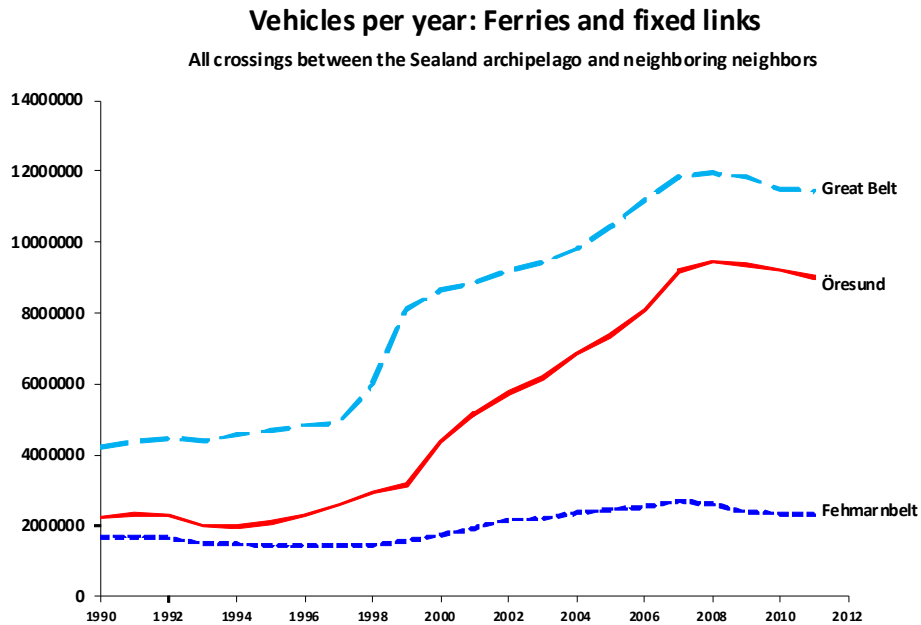
Until 1997 Sjælland (Sealand), with the metropolitan city of Copenhagen, the Danish capital (1.8 million inhabitants in the metropolitan area) was an island. The Danish island was connected to the European continent with very strong and efficient ferry lines. Westward to continental Denmark, large ferries carrying trains and cars departed every hour and the crossing time over the Storebælt (the Great Belt) was 1 hour (26 km between harbors for train ferries and 19 km for car ferries) plus embarkation and disembarkation time of 20 min. Eastward to Sweden from metropolitan Copenhagen to the 3rd largest Swedish city of Malmö (0.5 million inhabitants) and the 10th largest city of Helsingborg (0.1 million inhabitants), large ferries for trains and cars crossed four times per hour, ferries for cars only three times per hour and passengers ferries and hydrofoils completed the picture with direct city core to city core connection twice an hour. The large ferries crossed



Øresund (Oresund, Öresund or the Sound) at the shortest distance (4 km between harbors) some 45-km away from central Copenhagen and took 20 min plus embarkation, disembarkation, customs, and passport clearing time of 30 min. The hydrofoils took 50 min (distance of 35 km) plus embarkation, disembarkation, customs, and passport clearing time of 10 min. To the south between Denmark and Germany on the route from Copenhagen to Hamburg, large ferries for trains and cars departs two times per hour and the crossing time over the Femern Bælt (Fehmarnbelt) was 1 hour (20 km distance between harbors, or 60 km on an alternative, more easterly route) plus embarkation, disembarkation, customs, and passport clearing time of 20 min. During the night, departures were fewer due to lower demand.

Vehicle traffic crossing the straits between the Sealand archipelago and the neighbor regions shows the modest flows pre fixed links and the traffic jams created by the fixed links. The upper curve is the Great Belt traffic on different ferry lines and since 1997-1998 on the bridge and the remaining ferry-lines. The curve demonstrates how the fixed link accelerated traffic on the Great Belt. The Danish-Danish link profited by the fact that many networks are national and just needed the possibility of increased interaction to react. The decrease in the middle curve on Öresund 1992–1994 is due to fall in border retail because of devaluation of the Swedish currency. The increase from 2000 onwards is the effect of the fixed link. The bottom curve counts ferry traffic only on the Fehmarnbelt (the Fehmarnbelt fixed link project is in progress and will be finished 2021, see Matthiessen & Lundhus 2011 and Matthiessen & Worm 2011).

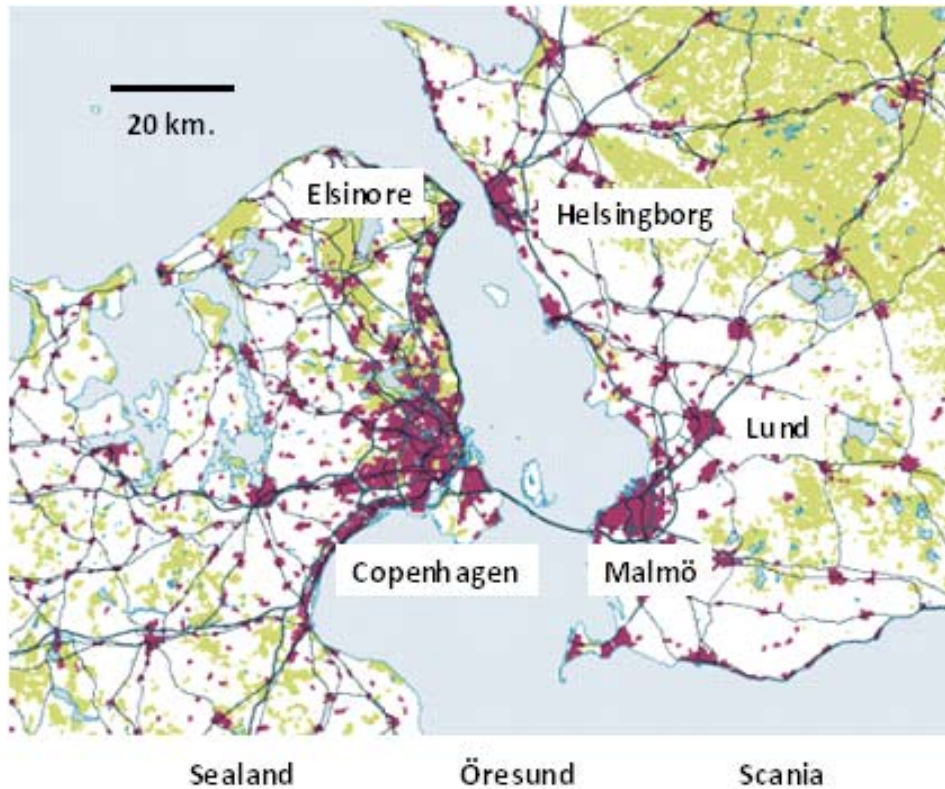
**Figure 9.1: South Scandinavia missing links/ fixed links**



### 9.3 Planning for a Cross-border Metropole

The Öresund area is the largest concentration of economic and social activity of the Nordic countries. It is the primary crossing point of Scandinavia and the most important gateway to the Baltic Sea Area and Copenhagen Airport is by far the largest international hub of the Nordic countries. The South Scandinavian scene has experienced a fundamental change of internal geography with the opening of the fixed link between Denmark and Sweden linking two rich concentrations of population and production by dramatically reducing the time distance between them and eliminating the land-sea barrier and bottlenecks. Development of a cross-border region in this area is favored by the combined forces of European Union policy on eliminating barriers for trade and communication and the reducing of the strong local barrier. The area serves as a model for European integration.

Figure 9.2: The Öresund Region. Source: Miljøministeriet 2007



In 1992, the Danish and Swedish governments decided to build a 16-km-long fixed link across Oresund. Construction began in 1995 and the fixed link opened for traffic in mid-2000. The decision on the investment was based on regional economic considerations although long-distance traffic was also a concern. The objective was to integrate the Malmö-Lund metropolitan region in Southern Sweden with Greater Copenhagen in East Denmark and to develop a metropolitan border region (2.5 million inhabitants) where the commercial profile could be specialized on the basis of the total volume, thus strengthening the city in the global competition. The Oresund link also related to international transport and the advantage of developing the South Scandinavian metropolis into the most important cross-point in Northern Europe, with all the associated locational advantages.

In the direction from Denmark to Sweden, the fixed link consists of a 4 km. long tunnel for motorway and railroad under the international waterway linking the Atlantic Ocean to the Baltic Sea, a 4 km. long artificial island, and a 8 km. long bridge (upper level motorway, lower level railroad). The Danish landing is directly into Copenhagen Airport. Bridge to city core distance is around 6 km on both sides. The fixed link itself has drawn other direct investments as it, for example, was necessary to build rail and motorway connections, and therefore also to Copenhagen Airport, which became much more accessible.

The explicit purpose of the fixed link between Denmark and Sweden was to establish a new regional growth regime driven by cross-border functional integration (the fixed link was also presumed to change and concentrate the North-European pattern of traffic flows). The object was to increase regional productivity, economic growth and competitive vitality, and thus give the Öresund Area new dynamics (Andersson & Matthiessen 1991, Matthiessen 2000, 2004, Matthiessen et al 2007, Knowles & Matthiessen 2009, Matthiessen and Knowles 2011, Andersson, Andersson and Matthiessen 2013). The vision is that the fixed link will span economic, administrative, institutional, technical, cultural and other barriers, and that the two separated urban systems can develop into one urban system. The strategy was three-sided. First as a "state of the art" exercise, aiming at developing the resources of the area in new combinations utilizing the potential of economy of the new scale. Second aimed at new development of specialization types. Third the object of the bridge was to give the South Scandinavian urban region a lift on the international metropolitan competition level in general terms and in direct hinterland competition with Stockholm.

The process of developing two balanced urban regions into one functional integrated region is a complicated and lengthy exercise. We have identified five overlapping phases in the development process:

- Phase 1: Visions and analyses.

- Phase 2: Large-scale investment decisions and their realization.
- Phase 3: General shift in attitude towards the whole integration project from negative to positive (population, politicians, market).
- Phase 4: Identification and neutralization of barriers to integration. Establishment of organizing capacity.
- Phase 5: Regional integration process of subsystems.

Phase 1 was in progress around 1990 although the analytic effort was modest compared with the visionary presentations. Phase 2 took place at extreme speed, and the decision to build the fixed link was made by the two governments almost overnight in 1991, and construction took place 1995-2000. Phase 3 has been a lengthy process in which resistance towards the whole project was activated, in court (by environmentalists), in public debate (with a great variety of viewpoints spanning from nationalistic to anti-growth), and even behind closed doors (Stockholm-based fear of metropolitan competition). The shift in attitude from a large majority of negative opinions to an equally large majority of positive ones occurred once again almost overnight in 1998 due to two factors. The first was due to an outburst of public pride related to the first of the large-scale fixed Scandinavian links (Great Belt), see Knowles (2000). Crossing traffic rose dramatically after that fixed Great Belt-link inauguration in 1997/98. The second factor was the construction of the fixed Öresund-link itself. The bridge was no longer a vision but a reality, you could see the pylons and people reacted positively. Phase 4 was activated in 1999 through a series of analyses and reports by various ministries, in which numerous legal, cultural, technical, financial, and organizational barriers for integration has been identified see below. Phase 5 is still in progress and submarkets have converged, but total integration is far beyond the horizon.

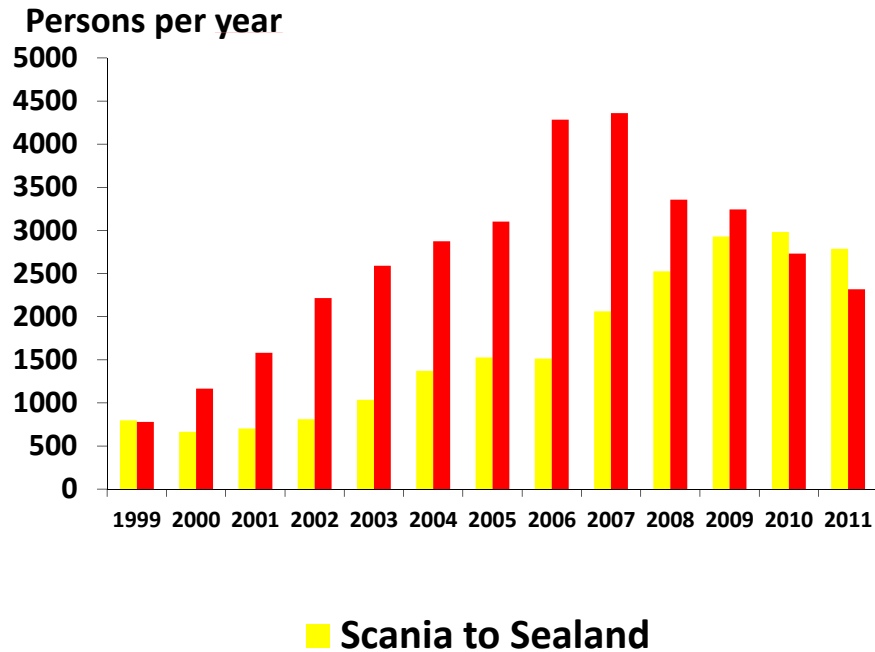
The barrier of time-distance has been reduced and the land-sea bottleneck is no longer problematic. The toll level on Öresund-crossing traffic is nevertheless still an important barrier. The question of toll is the subject of continuing discussion because the purpose and pursuit of integration is undermined by the high toll on all traffic. Standard price per private car round trip is 60 Euros and for train-passengers 16 Euros - frequent travelers benefit from a 50 percent discount. Lowering the tolls to 50 or 25 percent of the present level would undoubtedly increase traffic depending on the price elasticity of transport. It is of even greater interest that any lowering of the toll on the bridge would greatly accelerate the integration process, boost productivity and subsequently increase the tax base. In the long run, the integration process would again reduce other barrier effects and certain types of traffic on the bridge might even decrease; for example shopping trips once consumer prices are equalized as a reaction to evening out differences within a new common regional market.

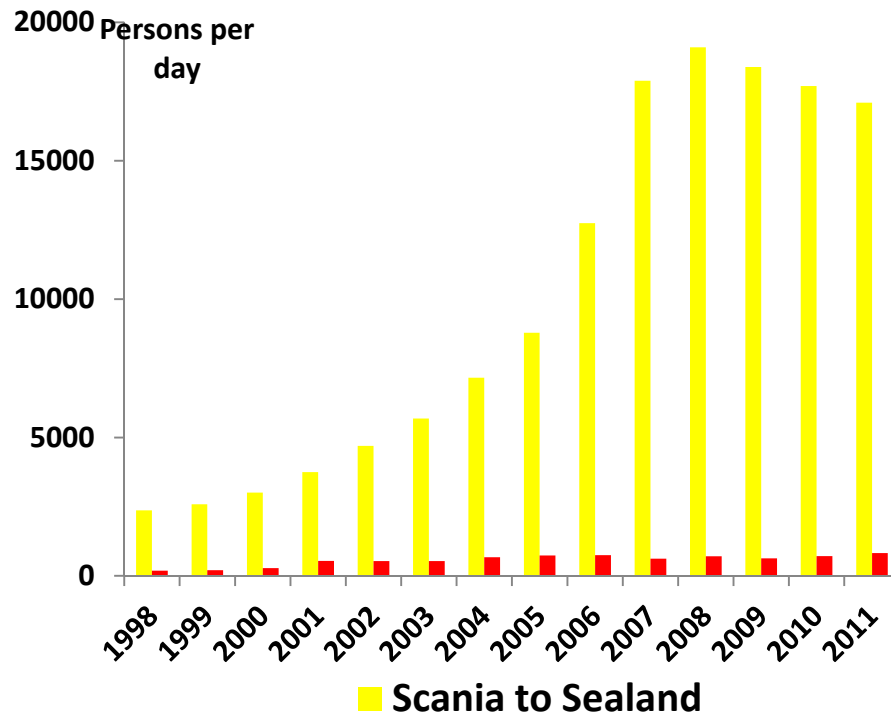
However, other barriers are still present in the form of different cultures and languages - although the Danish and Swedish languages are rather similar and cultural differences are not that dissimilar. Scandinavians understand each others languages with little difficulty, and intermarriages

are as unproblematic as other marriages. Major barriers however are more deeply rooted in differences in legal systems. The Danish and the Swedish governments published reports from all ministries, which were involved in any cross-Öresund development shortly before the opening of the bridge. A summary report identified legal barriers for integration and gave advice on harmonization (Regeringen 1999). Thousands of paragraphs presented hindrances to integration. During the four years following the reports, a series of bi-national negotiations on harmonization has been undertaken in order to facilitate integration. "Soft" integration issues such as cooperation of the people to people type, or institutional cooperation, flourished, but "hard" legal constraints were unchanged until 2004 when a breakthrough occurred on the commuter taxation issue following tedious bi-national negotiations. The agreement implicates that the border-crossing commuter pays taxes on the place of work and that money to cover municipality expenditures on the place of living are transferred. 2005-2012 no new bilateral initiatives have been taken on this or other legal issues.

The vast majority of people crossing the Öresund are local travellers who travel with a purpose (job, retail, services, culture, and terminal access). According to information provided by the Öresund Consortium, growth in traffic during recent years is particularly accounted for by new local traffic, which would indicate that the integration process is in progress.

**Figure 9.3: Migration between Sealand and Scania**



**Figure 9.4: Commuting between Sealand and Scania**

To further illustrate the integration process figure 9.3 presents Öresund crossing migration data and figure 9.4 demonstrates the number of daily commuters between residence in one country and work in the other. Migration was low, stable and balanced until the opening of the bridge when migration from the Danish to the Swedish parts of the Öresund Area and commuting in the opposite direction started to increase dramatically. Migration from the Swedish to the Danish parts of the Öresund Area and commuting from Zealand to Scania increased more modestly. These types of integration are mainly driven by the different characteristics of the two nations. Housing costs are low in Scania yet high in Greater Copenhagen. Products like cars and white ware are cheaper in Sweden than in Denmark. Wages are higher in Denmark than in Sweden but income tax is much higher in Denmark than in Sweden where, contrastingly, heavy taxes are paid directly by firms to cover the social expenditures of their staff. Many of the new commuters are migrants from Denmark to Sweden who keep their job in Denmark and utilize the favorable differences between the cost structures of the two countries. Commuting figures triples migration figures, which indicates that the two labor markets also interact regardless of migration, which would imply that people are seeking and getting jobs on

the other side of the Öresund Strait, and that a more integrated labor market is evolving.

The new competitive position of the South Scandinavian metropole can be illustrated by a few figures of 2009. The population of 2.5 million inhabitants give a modest European rank as number 28. But especially Copenhagen is an affluent city and measured together with the South Swedish centers it is ranked 18 by gross regional products. Position in international networks are excellent and the international traffic on the airport of Copenhagen and the much smaller airport of Malmö gives the European rank as number 12, and when it comes to the research output measured as papers in international scientific journals on medicine, science and technical research 2008-2010 the rank is 7.

#### 9.4 Conclusion

25 years ago Greater Copenhagen was in need of new organizing capacity for attracting tourists and international investments. Discussions and analysis lead to the establishment of Wonderful Copenhagen for attraction of tourists and Copenhagen Capacity for attraction of international investments in the beginning of the 1990ies. Both organizations have developed into modern public-private partnerships of high quality and impact. This development has been influenced directly and indirectly by Euricur and especially by professor Leo van den Berg.

The Öresund bridge was decided on sound transport economic calculations, but the strategic project of integration and by this lifting the infrastructural project into the dimension of metropolitan competition was based on inspiration from different types of regional development research, such as the research of the Euricur, which was carried to South Scandinavia by scientists such as the author of this chapter. As a consequence of the analytical shift from transport economics to metropolitan development the location of the bridge between Denmark and Sweden was not to span the shortest distance of 4 kilometers at Elsinore-Helsingborg (as initially planned), but to connect the two major urban concentrations of Copenhagen and Malmö at a place where Öresund has a width of 18 kilometers. The cross border development of Greater Copenhagen together with the Swedish neighbor cities of Malmö and Lund following the Öresund bridge elimination of the land-sea barrier 2000 is in itself a benchmarking model for cross-border development in the European Union.

Successes have many fathers, and this statement is certainly true for the two given examples, but one of the fathers is Professor Leo van den Berg.

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## **Chapter 10: Regions, places and cities in the mental maps of Italian entrepreneurs: the territorial attractiveness of Italy**

**Dario Musolino and Lanfranco Senn**

Territorial attractiveness is an issue which is becoming more and more important in regional science, and more policy relevant, in the light of the growing importance of the policies for territorial marketing and attraction of FDI (ESPON & University Rovira i Virgili, 2012). The ability to attract investments, firms, human capital, workers, entrepreneurs, talented people, and so on, is a territorial asset more and more decisive nowadays, when the globalization process entails considerable expansion of relations and flows not only of goods and services, but also of investments and people (Fratesi and Senn, 2009). Together with territorial competitiveness, it is likely to become a key dimension that can contribute to explain the economic development of regions and cities<sup>93</sup>.

The meaning of territorial attractiveness can change depending on the underlying phenomena that you encompass in its concept<sup>94</sup>. It can be conceptualized either as the endowment of tangible and intangible resources that makes an area attractive (we can say, “real attractiveness”), such as human capital, transport infrastructures and services, provision of efficient public services, etc., and then favors the localization of economic activities; or as the quantity and quality of mobility flows that enter into an area (or that are retained in it), such as talents, businessmen, researchers, scarcely or highly qualified workers, tourists, city-users, etc. (“revealed attractiveness”); or as the perception, the images that characterizes an area (in this case we will say “perceived attractiveness”), that is how people, or some specific groups, perceive an area with regard to their economic purposes / interests (tourists have an image of a place related to the role of visitors and consumers of several kinds of local services; businessmen are concerned with the business opportunities; etc.). This last meaning is clearly related to some concepts such as image, perception, cognition, and mental map, “conceptual tools” widely used in the social sciences, especially in the context of behavioral geography (Meester, 2004).

Despite the clear relevance of this issue, territorial attractiveness has not been studied so widely and in-depth as territorial competitiveness. The impression is that the relevant literature is still being developed<sup>95</sup>. Some of the most recent studies conducted on an international scale include the ESPON project ATTREG (2012) which focused on the – real and revealed

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<sup>93</sup> See for example the analysis conducted by Colombo, Musolino and Senn (2013) with regards to competitiveness and attractiveness in Italy.

<sup>94</sup> See for example the reflections conducted by Ballotta (2004), Dubini (2006) and Musolino (2012).

<sup>95</sup> See, for example, the reflections and the analyses about attractiveness developed in Dubini (2004, 2006 e 2007), ESPON & University Rovira i Virgili (2012), Florida (2002), Russo (2012).

– regional attractiveness of places for mobility flows; or the study by Halme et al. (2012), about the attractiveness and the flows of researchers in Europe. No relevant studies have been found regarding the perception of places by entrepreneurs, except for the research line started by Meester and Pellenbarg (2006), that investigated and analyzed for decades the locational preferences of entrepreneurs, these are the mental maps of entrepreneurs in different European countries<sup>96</sup>.

In this chapter, we present the main results of a web questionnaire survey conducted in the context of this research line, aimed at studying the mental maps of Italian entrepreneurs. It represents the Italian case study<sup>97</sup> of an international research project. Firstly we will present the international research line on mental maps of entrepreneurs, the theoretical and empirical background. Then the design and the methodology of the survey conducted in Italy will be discussed. Followed by the main results, and a

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<sup>96</sup> In Italy empirical studies carried out in the last years have addressed the real and the revealed attractiveness of locational environments (Dubini, 2004, 2006, 2007; Siemens-European House Ambrosetti, 2007). Some studies can also be included as part of this issue, although strongly focused on the regional and local destination of FDI (Basile, 2002 and 2004; Daniele e Marani, 2008), and on the location of new plants of firms within the Italian territory (Centro Studi Unioncamere, 2008). But, as far as the perceived attractiveness of regions and cities is concerned, there is a clear lack of studies. The only studies have coped with the image of Italy as a whole for foreign investors, analyzing the relevant location factors for them (Dubini, 2004, 2006, 2007); or with the image of macro-regions, such as Mezzogiorno (Fondazione Nord Est, 2002); or with the image of single territorial units, such as Milan (Politecnico di Milano et al., 2010).

<sup>97</sup> The survey has been realized by CERTeT (Center for Research on Regional Economics, Transport and Tourism) at Bocconi University, in cooperation with the Groningen University, Faculty of Spatial Sciences, Department of Economic Geography. It was designed, coordinated and managed by Dario Musolino, and supervised by Lanfranco Senn, Piet Pellenbarg and Wim Meester.

We wish to thank firstly Piet and Wim, for having introduced us to this research line, and for their suggestions and recommendations along the research design process and its realization; Carlo Erminero and Caterina del Fante (Carlo Erminero & Co.) who made available the software used for the web survey and the data collection; Pierpaolo Moio, who created and developed the web application for the interactive map; Clara D'orlando, who contributed to the realization of the statistical analyses; Attilio Abbiezzi (Webattitude), who provided the emailing services; Paolo Tarulli, who helped to revise and upgrade the contact details of the firms; Gianluigi Gorla, who gave precious comments and suggestions with regards to the preliminary results.

We also wish to thank the following local manufacturers associations and institutions (and the people working there who take care of our project), for their support in contacting the firms: Trento Sviluppo (Giorgio Fiorini, Giulia Fiorini), Associazione Industriali Reggio Emilia (Davide Bezzecchi), Unindustria Treviso (Federica Fontanin), Associazione Industriali di Novara (Olivetta Federici), Assolombarda (Andrea Fioni, Valeria Negri), Consorzio Italy Export (Davide Bertinotti). We received also support in contacting the firms, and we also wish to thank: Stefano Zimbalatti, Carlo Imbimbo, Carlo Moser, Saverio Rodà, Carlo Perretti, Giuseppe Meduri, Gennaro di Cello, Stefano Bombace, Ilaria Mariotti, Giulia Pesaro, Ila Maltese. Lastly, we are very thankful to all entrepreneurs, managers of the firms located in Italy who participated to our web survey filling the electronic questionnaire. CERTeT-Bocconi self-funded some of the research activities (creation and development of the web application for the interactive map; revision and upgrade of the contact list).

breakdown of the most important variables regarding firms (sector, firm size, etc.) and respondents (age, education level, etc.); results derived from a statistical multivariate variance analysis are also presented and discussed. Furthermore, we have highlighted some comparative evidences, taking the findings of the surveys conducted in other countries into account, and we have also noted some explanatory elements. Lastly, we have given the final conclusions and policy implications.

### 10.1 The research on the mental maps of entrepreneurs

The behavioral approach and its criticism to the neoclassical approach to location theory, based on the concept of perfectly informed and rational actors, defines the *theoretical background* of the international research line about mental maps of entrepreneurs. The neoclassical approach reckons that the best location for a firm is the place where the greatest profit can be made, that is, the place where the lowest total costs (costs of production and transport) or the greatest revenues can be obtained. According to this approach, subjective considerations have no place in the location decisions of entrepreneurs: the ideal location of a firm is just an “objective” issue, which needs to be treated with a rational economic behavior, exploiting optimally all information.

On the contrary, the behavioral approach argues that the entrepreneur is a *satisfier* rather than an *optimizer*, who makes use of imperfect information and “bounded rationality” (Simon, 1957). Rather than being a perfectly informed actor, he is an information processor acting in a wide and uncontrollable information space; and his rationality is limited by many elements, such as the “knowledge gap” (Mack, 1971), the fundamental unpredictability of future events and developments, the tendency to conform to social norms and rules (procedural rationality), the importance of his individual’s own insights (expressive rationality) (Hargreaves-Heap, 1989). Furthermore, it is not said that the economic actor pursues exclusively the aim of maximizing his profit, as his decisions are frequently led by other motives and goals. According to behavioral geography, subjective, non-rational considerations play therefore an important role in the decision process of economic actors, like entrepreneurs: their spatial behavior is determined not only by the *spatial reality*, but also by the subjective perception that they have of that reality (Meester, 2004).

Behavioral geography is based on a wide conceptual apparatus, derived not only from economics and geography, but also from other social sciences, such as psychology. In particular, concepts like “perception”, “image” and “mental map” are some of the most important “conceptual tools” that help to illustrate and explain the spatial patterns of the locational preferences of entrepreneurs. The concept of a mental map, firstly used by Gould and White (1974), in the field of behavioral geography can assume several meanings. Besides the mental maps in a narrow sense, that is the image of the map as it appears in someone’s mind, the basic meaning refers to the so called “sketch maps” (Saarinen, 1995), the maps representing an image that is sketched on a paper drawn by the individual.

Another kind of mental maps are the ones defined as “knowledge maps”, corresponding to the “cartographic representation drawn to scale of spatial knowledge about “objective” conditions such as the existence of spatial units, spatial conditions, etc. ... is the one when a person’s spatial cognition – in other words, one’s knowledge of the space – is projected on a map drawn to scale”<sup>98</sup>. The last type are the “preference maps”, namely the “cartographic representation drawn to scale of spatial preferences and ratings”<sup>99</sup>, that is the representation of the attitudes that people hold about places (Tuan, 1975).

The *empirical background* of the research conducted and presented here is based on a long-lasting research line aiming at surveying the locational preferences – mental maps - of entrepreneurs in several European countries, such as The Netherlands (Meester, 2004; Meester and Pellenbarg, 2006; Pellenbarg 2012), Germany (Meester, 2004), Hungary (Kozma, 2000), Czech Republic (Spilkova, 2007), and Belgium (Holvoet, 1981).

This research line, which can be considered as the first that has investigated this issue<sup>100</sup>, and that was started by Pellenbarg and Meester (1984), has two main features: on one side it defines a simple methodology to investigate the mental maps of entrepreneurs based on a questionnaire survey; and on the other side it applies and replicates the same methodology to all case studies at country level, in order to get the best comparability in space and time of the findings. Therefore, surveys in all case studies are set up implementing the same methodology: a postal

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<sup>98</sup>Meester, 2004, p. 31.

<sup>99</sup>Meester, 2004, p. 31.

<sup>100</sup>Few studies indeed aimed at investigating the spatial preferences of entrepreneurs had been realized before (see Meester, 2004). The literature regarding perception of places shows that most of the studies deal with other subjects and with other kind of preferences, such as residential preferences (students), shopping preferences, recreational preferences (tourists). These kind of spatial preferences have been investigated in several investigations conducted in the ‘70s, ‘80s and ‘90s starting from the pioneering study by Gould in 1966 about residential preferences of students in a number of European countries. They gave researchers who subsequently dealt with mental maps of entrepreneurs several hints about the methodological aspects of these kinds of surveys. As far as the few studies in the field of locational preferences of entrepreneurs are concerned, we can highlight the studies realized in the ‘70s and ‘80s by Monheim, FEM, McDermott and Taylor, Barr, Waters and Fairbairn. While the two latter studies (respectively realized in New Zealand and in the Canadian province of Alberta), only focused on the rating of the location factors by entrepreneurs; the studies by Monheim about Germany and by FEM about The Netherlands dealt with the question of the preference among alternative locations (the respondents were asked to rate a number of locations). Besides few methodological elements experimented (for instance, in the study by Monheim the questionnaire was made of a list of 57 locations to be rated on a three-point scale), all these studies have the merit for having highlighted some important aspects in the explanation of the spatial preferences of entrepreneurs, such as the role played by the place occupied by the location in the urban hierarchy; the residential environment as a location factor for the firm; the dichotomy center-periphery at country level.

survey made of a very short questionnaire<sup>101</sup> (Figure 10.1), where the key element is a map of the country representing the locations that the respondents have to rate. The respondents (entrepreneurs managing firms with more than ten employees belonging to selected branches of manufacturing and services) were asked to rate each of these locations on a five step ordinal scale, answering always the same key question.

Each of the case studies illustrated the mental maps of entrepreneurs, and explained their shape and their characteristics<sup>102</sup>. Some spatial patterns appears to be rather regular in the different geographical contexts, such as the preference for central locations within any country, and they also revealed to be persistent in time (through the surveys being taken over different periods of time). Moreover, the influence of both subjective<sup>103</sup> and objective<sup>104</sup> elements on the spatial preference maps of entrepreneurs also represented one more interesting and relevant outcome.

**Figure 10.1: Map representing spatial units to be rated in the questionnaire of the first survey realized in The Netherlands (1983)**



Source: Meester (2004)

<sup>101</sup> It was made of just two pages.

<sup>102</sup> Thanks also to the use of various statistical techniques, such as analysis of variance, regression, trend surface analysis and principal component analysis (see for example Meester, 2004, chapter 6 and 7).

<sup>103</sup> Such as, the preference for one's own environment ("locational self-preference").

<sup>104</sup> For instance, the relative location with respect to customers, agglomeration effects and infrastructures.

## 10.2 The survey on the mental maps of Italian entrepreneurs: design and methodology

The design of the survey conducted in Italy was aimed at using the methodology applied in the other case studies (Meester, 2004), but adapting it to the peculiarities of the Italian case study, and introducing some innovations in order to make the survey efficient, effective and cost saving.

The identification of the *research population* among the entrepreneurs satisfied the following three criteria:

- Being capable to make a well-founded judgment on the locational environments in the study area;
- Having an interest, even hypothetic, to evaluate an alternative location;
- Having the authority, the power (have such a role in the firm) to take decisions about the location of the plants; in other words, who can decide about the location of the firm by themselves.

In order to find entrepreneurs who satisfy condition (1), the survey was limited to entrepreneurs located in Italy (whose firm is located in Italy)<sup>105</sup>. Differently from entrepreneurs who work in other countries, they are in fact intuitively supposed to have knowledge of the Italian territory more thorough than the knowledge that their “colleagues” resident in other countries can have<sup>106</sup>.

Within the population of entrepreneurs operating in Italy, based on the relation existing between the width of action space and the width of information space of a firm<sup>107</sup>, we have considered firms whose market area is extended at least at the national level. As this kind of information is not available<sup>108</sup>, we have inferred indirectly to it, looking at the size of the firm and other firm characteristics. This is why we have included in the research population only firms over a certain size (20 employees)<sup>109</sup>, and we have excluded sectors where firms usually operate in the direct proximity to their location (for example, retail, catering, specific kind of business services such as accountants and lawyers, etc.).

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<sup>105</sup> It means that not only Italian entrepreneurs can be included, but also foreign entrepreneurs who live and work in Italy.

<sup>106</sup> In some surveys regarding the image of Italy as a locational environment (regarding the whole, not spatially disaggregated), the foreign business community was the main target of the survey (see Dubini, 2004; 2006). Being external to Italy, in fact, they were assumed to be able to rate well Italy in the whole as a place where to invest, compared with the image of other countries. Anyway, it is also true that they may not be able to make a careful and thorough evaluation internal to the country; that is, to weigh pros and cons of locating in different places within Italy.

<sup>107</sup> Taylor (1975).

<sup>108</sup> We refer to the most used datasets regarding Italian firms used for realizing surveys.

<sup>109</sup> Based on the relation between firm size and size of the market area (Meester, 2004), the firms whose size is not too small. Taking the experience of the other case studies into account, and considering the structure of the Italian productive system, the number of 20 employees turns out to be the most reasonable threshold.

In order to find entrepreneurs who satisfy condition (2), we excluded certain groups because of the practical limitations that apply to their choice of a location. This is the case of firms which have a strong locational constraint, such as firms engaged in activities bound to the land (mining, agriculture, etc.), and therefore do not have any interest in evaluating alternative and different locations. Lastly, regarding the criterion (3), we have further restricted the research population to single-plant firms and to headquarters of multi-plant firms (the management of a branch usually lacks the formal mandate to decide him/herself on the location of the branch), and we have excluded government institutions and semi-government organizations (in these cases, those who have political responsibilities to take the decision about the location of these activities)<sup>110</sup>.

Therefore, at the end of the selection of the relevant groups, the target of the survey was made of entrepreneurs leading private firms with more than 20 employees located in Italy, and belonging to a range of branches, essentially part of manufacturing and the advanced tertiary sector<sup>111</sup>.

The design of the *spatial units* to be rated, in terms of shape and number, were another key methodological step, which was decided based on the following criteria:

- Territorial units should be homogeneous, representative and recognizable
- The number should be “not too low”, in order to be able to derive a sufficiently detailed image of the locational preferences of entrepreneurs, and “not too high”, in order to prevent the respondents from taking too much time to fill in the questionnaire, and in order not to put under too much pressure their capability to give all the ratings
- The subjective judgment of the researcher should be minimized

Among alternative options (administrative units, such as regions and provinces; functional units, such as industrial districts, local labor systems and markets; punctiform units, such as cities and towns), the solution for the Italian case was to choose the administrative territorial units, both regions (Nuts2) and provinces (Nuts3), making use of a stepwise mechanism thanks to the use of an electronic questionnaire. In the Italian case, we made a significant change from the option usually chosen within other surveys, where cities are normally the spatial elements to be rated.

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<sup>110</sup>Moreover, the perspective of the managers of these activities do not take the profit motive into account, so being very different from the perspective of the managers of businesses, who decide about the location basically starting from profit-based motivations.

<sup>111</sup>The population has been extracted by the database Bureau van Dijk – AIDA, made of the official balance sheets of about 700,000 Italian companies kept in the archives of the Italian Chambers of commerce. The database Bureau van Dijk – AIDA, besides the balance sheets, is rich of other relevant information about the firms and their performance, including the names of top managers. It has a good coverage of the universe of small, medium and big enterprises. There was no sampling, all firms present in the database, given the availability of the contacts, were contacted for participating in the survey.



Regions and provinces, notwithstanding their drawbacks<sup>112</sup>, determine the most popular geographical map of the Italian space “in the mind” of the Italian population. In fact, they are the territorial units typically targeted by other surveys and studies carried out with concern to issues such as territorial competitiveness<sup>113</sup> and quality of life<sup>114</sup> in Italy. They turn out to be the locational environments most consistent with several, different, and overlapping patterns / images of the Italian economic geography (industrial districts, metropolitan areas, rural areas etc.)<sup>115</sup>. Moreover, if regions are too few<sup>116</sup>, and then do not offer a sufficiently disaggregated image of the Italian geography, provinces offer a highly detailed picture of Italy (therefore, rating both can satisfy simultaneously the need of evaluating the two territorial scales). Lastly, the choice of regions and provinces as administrative units does not depend on any subjective judgment of the researcher.

The *questionnaire* was also designed using the following few basic methodological principles and points:

- The number of questions, was limited in order to make it simple and quick to fill in, and to give enough time to the respondent to evaluate all the spatial elements identified<sup>117</sup>;
- The kind of questions, focused on firm characteristics and on some respondent characteristics, such as sex, age and education level;
- The choice of a five-points ordinal scale (“*very unfavorable*”; “*unfavorable*”; “*neutral*”; “*favorable*”; “*very favorable*”); in order to rate the locations depicted in the map;
- The use of the same question always used in the previous surveys when asking to evaluate the locations<sup>118</sup>;

<sup>112</sup>For example, it is clear that regions and provinces do not usually correspond to functional territorial units, and so they cannot give a picture of the Italian geography coherent with the actual role played by each locality in the economic space (see for instance the studies on functional urban regions - FURs - realized by van den Berg et al in 1995).

<sup>113</sup>Such as, for instance, “Atlante della competitività delle province italiane” (<http://www.unioncamere.it/atlante>).

<sup>114</sup>Such as the survey yearly realized by Il Sole 24ore on the quality of life in the Italian provinces.

<sup>115</sup>One more reason why the usual option – punctiform categories - has been excluded is that cities, towns, municipalities, differently from regions and provinces, do not seem to be consistent with the rather diffuse, balanced model of territorial development in Italy (neither too much polarized nor too much dispersed), where both urban and extra-urban development seems to be important (industrial districts represent the typical example of extra-urban, or, better to say, rural-urban economic development).

<sup>116</sup>20 regions and 110 provinces.

<sup>117</sup>This was a key methodological step in order to try to raise the rate of complete and usable responses. In fact, one of the features of this research line has always been the ability to get high response rates. In the surveys conducted in The Netherlands in 1983 and 1993, for example, usable responses were respectively 22% and 21%; in the one realized in Germany was 11% (Meester, 2004).

<sup>118</sup>Literally, in Italian: “Supponga che, per qualsiasi ragione, debba cambiare localizzazione alla sua impresa (o a una unità locale della Sua impresa) all’interno del

- The use of a map to depict and show to respondents the spatial units, that is regions and provinces. As demonstrated by the success of the other surveys<sup>119</sup>, the use of a map to rate the spatial units makes the questionnaire definitely more appealing, and it represents an easy way for respondents to identify and recognize the locations.

In order to increase the explanatory part of the questionnaire, we introduced an innovative element represented by two open questions where the respondents had to comment and the best and the worst were given to four provinces (two provinces with the best ratings; and two provinces with the worst rating), randomly extracted by the software among all the best marked provinces.

As a *means of communication*, we have chosen to carry out a web survey implemented by an electronic questionnaire, introducing a considerable innovation in the research line, so far realized by postal surveys. Significant savings in terms of costs, time and work needed to contact interviewees and to collect data were obtained by doing so. The implementation of the map in the electronic questionnaire was the most challenging part. An interactive map in fact was developed, and a stepwise mechanism for rating was adopted in order to enable the respondents to rate both regions and, eventually/optionally, provinces:

- The respondent visualizes the interactive map (Figure 10.2);
- Moving the gambler on the map he can highlight the regions;
- He chooses the first region that wishes to rate and, clicking on it, he opens a pop-up where he visualizes the key question seen above<sup>120</sup> and the five-points ordinal scale (Figure 10.3);
- After rating the region, in the same pop-up a second question (Figure 10.3) asks him to rate each of the provinces of the region, or if assigning them by default the same mark given to the region

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territorio del nostro paese. Sulla base di questa ipotesi, che valutazione da' come possibile localizzazione, ad ognuna delle aree indicate nella mappa allegata?". Which can be translated as: "Suppose that, for any possible reason, you have to change the location of your firm (or of one the units) within the Italian territory. Given this hypothesis, how do you evaluate each of the area indicated in the map as possibile new locations of your firm?". Actually, as you can read, it is clear that such a questions refers to a – hypothetical - relocation decision, not to a location decision. Yet, the target of the survey is not made of new potential entrepreneurs, but of existing entrepreneurs, so this survey does not enable to address the mental maps of people who are going to become entrepreneurs, establishing a new firm. Moreover, it is important to point out that, as some studies have showed (Bramezza and Gorla, 1995) for some Italian regions like Milan and Central Veneto, in some cases location decision does not differ from relocation decision. For example, as regards multi-plant firms and groups, Gorla and Bramezza point out that a new firm or a new establishment in an area might be realized to "transfer some pre-existing facilities from one establishment to a new branch". They then conclude that "except in the case of free standing single plant firms, where births and relocations are unambiguous events, the category of new establishments may often hide what are effectively relocations" (Bramezza and Gorla, 1995, p. 107).

<sup>119</sup>See note 27.

<sup>120</sup>See note 28.

(doing so, he can go quicker). In the first case, he assigns the rate to the provinces by opening another pop-up similar to the previous one; otherwise, in the second case, he passes directly to the evaluation of the second region and so on.

**Figure 10.2: Visualization of the interactive map of Italy representing administrative Regions and Provinces**



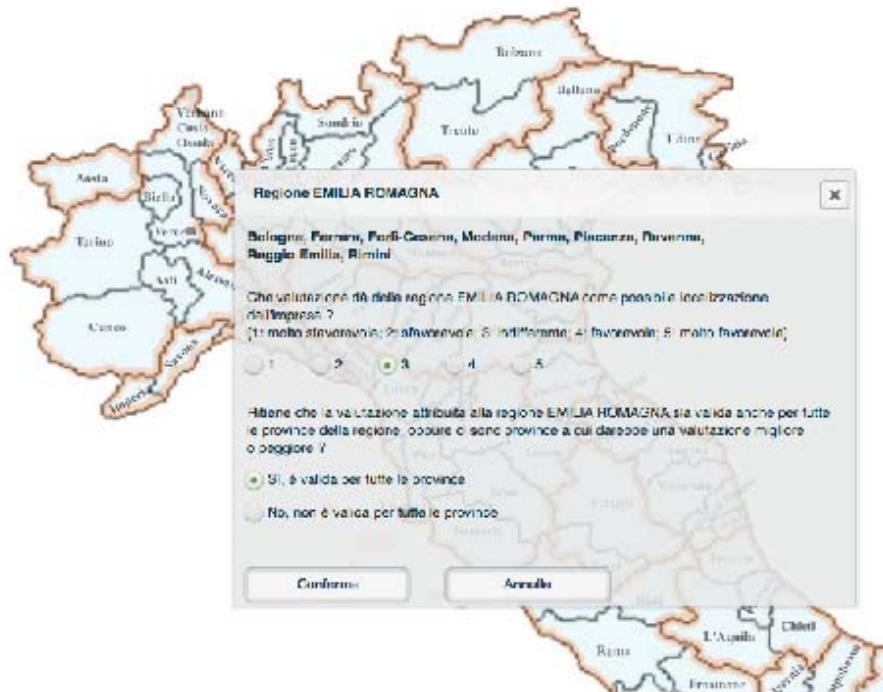
### **10.3 The survey on the mental maps of Italian entrepreneurs: main results, comparative remarks and explanatory elements.**

There were about 10,000 entrepreneurs contacted to participate in the survey. There were 645 respondents, of whom 225 properly filled the questionnaire, making them usable<sup>121</sup>. The response rate, in relation to the usable questionnaires, was 2.25%. The respondents who did not properly fill the questionnaire interrupted it before completing the rating of regions and provinces. The lack of the rating of spatial units, the most important part of the questionnaire, was so crucial that 420 questionnaires were not considered usable and not included in the database.

<sup>121</sup> The survey was realized within the period from January 2010 to July 2011.

Firms were also contacted directly<sup>122</sup>. In some areas we could benefit from the help of local manufacturer firm associations, who both provided correct information about the contact details<sup>123</sup> and “sponsored” at the local level the survey. Given the extremely low response rate, the support of the local manufacturer associations can be considered very beneficial. The reminder were also used and resulted in an effective tool. The responses from northern firms were 142 (63%), from central firms 40 (18%), and from southern firms 43 (19%). Manufacturing firms were 167 (74%) and services firms 58 (26%).

**Figure 10.3: Visualization of the pop-up containing the key question**



Visualization of the pop-up containing the key question as seen above (a shorter version), the five-points ordinal scale, and the question concerning the optional rating of the provinces (in the example, Emilia-Romagna).

### 10.3.1 The attractiveness of macro-regions, regions and provinces

At the *regional scale* (Figure 10.4), the first clear result emerging from the survey says that in the mental past of Italian entrepreneurs there is a

<sup>122</sup> By means of an email message directly sent to their email address. As usually conducted in any web survey, in the message they could find a weblink; clicking on it they could have access to website of the survey, and then they could fill the questionnaire.

<sup>123</sup> In fact, one of the main problems that we faced in carrying out the survey (and that slowed down its realization) was the lack of complete and upgraded contact information about the firms.

rather wide gap between north-central regions and southern regions. The spatial hierarchy from north to south is apparent: Lombardy, Veneto, Emilia-Romagna, Piedmont, Tuscany, and other north-central regions are at the top of the ranking, getting an average score greater than 3, while all southern regions are rated less than 3 and are in the low part of the ranking. Some of them, Sicily, Campania, Sardinia and Calabria, received even less than 2, and their position is at the bottom.

According to the results Southern Italy is definitely the least attractive macro-region in Italy, it is very far from the average level of attractiveness of the rest of the country, as the average figures concerning the macro regions show (Table 10.1).

**Table 10.1: Ranking of Italian macro-regions**

North	3,42
Centre	3,05
South and Islands	2,11

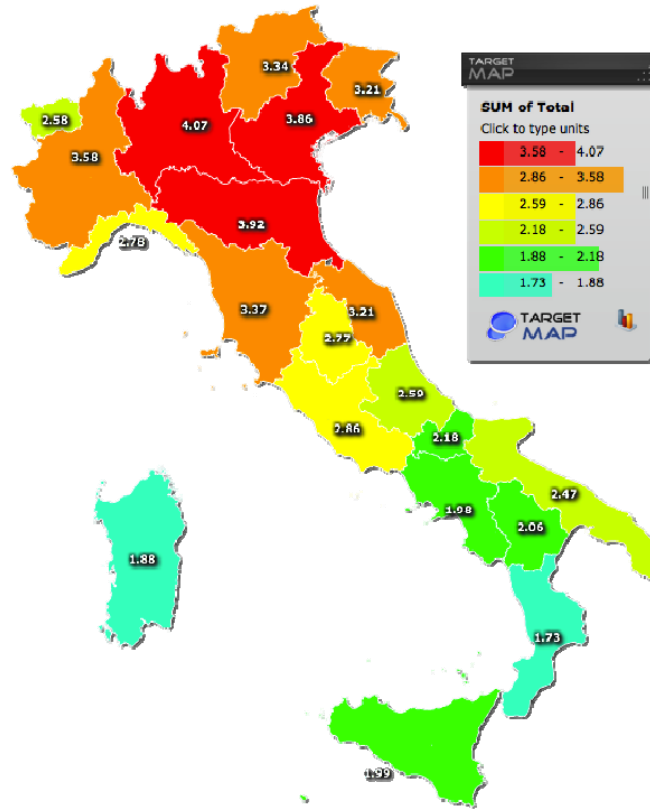
*Source: questionnaire survey (225 usable questionnaires)*

*\* Arithmetic mean of Nuts2 data*

The north-south divide cannot be considered the only spatial pattern present in the mind of Italian entrepreneurs, although being the most evident. After looking at Figure 10.4 more in depth, it is possible to notice that within macro-regions other findings make spatial patterns less obvious and quite articulated:

- In the northern macro-region, the small and “peripheral” regions (Friuli Venezia-Giulia, Aosta Valley, Liguria)<sup>124</sup> get a lower score than the big and central regions (Lombardy, Veneto, Emilia-Romagna, Piedmont). The variance of the score among northern regions is high (from 4.06 of Lombardia to 2.56 of Aosta Valley). Liguria, in particular, and Val d’Aosta are positioned out of the group of leading northern regions: they score even less than 3. Therefore, we can affirm that the so called “megacity Regione padana” apparently plays a key role in the mental maps of Italian entrepreneurs;
- As regards the central macro-region, it emerges that Tuscany and Marche belong to the group of top regions, scoring more than 3. The variance of the score among central regions is not high;
  - On the other hand, southern Italy, except Puglia (2.47) that scores more than the average of the macro-region (2.11), results to be more homogeneous, the score variance being low.

<sup>124</sup> Actually, they are peripheral in the context of the Italian geography, but if we look at the bordering countries and regions (for example, in the case of Trentino-Alto Adige, Friuli and Val d’Aosta), in the European geography their location is even more central than regions such as Lombardy, Veneto and Emilia-Romagna.

**Figure 10.4: Average ratings of Italian regions (Nuts2)**

Source: questionnaire survey (225 usable questionnaires)

The results on a *provincial scale* (Figure 10.5 and Table 10.2) are substantially consistent with the results observed at the regional level. Besides this general reflection, what is interesting is that, in each of the biggest regions, where there are the most important urban areas (Lombardy, Piedmont, Emilia-Romagna, Lazio, Sicily, Campania), you can regularly see a slight gap in favor of them, even if not so wide. The mark assigned to the main urban area is usually a little higher than the one assigned to the other provinces. Actually, seemingly the bigger, in demographic and economic terms, is the urban/metropolitan area (for example Milan<sup>125</sup> and Rome), the wider is the gap, showing a kind of urban polarization effect at the regional scale.

<sup>125</sup> Senn (1995) has observed since the beginning of '90s the high and specific attractiveness of Milan for firms. In particular for multiplant firms and groups who aim at relocating some of their key functions (such as headquarters).

**Table 10.2: Average ratings and ranking of Italian provinces (Nuts3)**

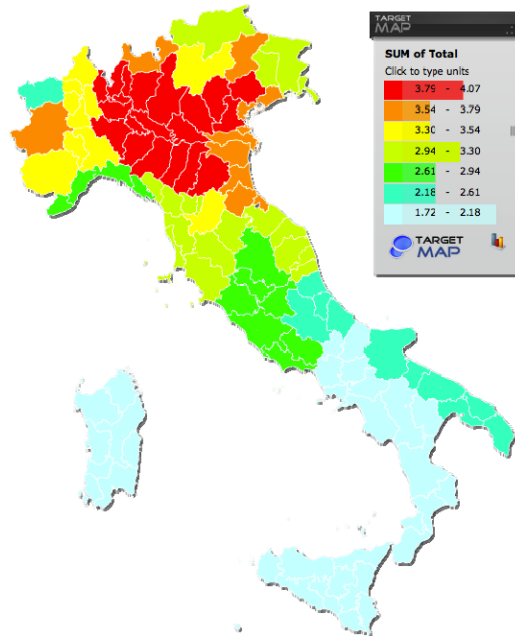
1	Milano	4,0	56	Trieste	3,13
2	Brescia	4,0	57	Gorizia	3,13
3	Monza e Brianza	3,9	58	Roma	2,94
4	Bergamo	3,9	59	Genova	2,80
5	Bologna	3,9	60	Perugia	2,79
6	Mantova	3,9	61	La Spezia	2,78
7	Reggio Emilia	3,9	62	Terni	2,77
8	Varese	3,9	63	Savona	2,74
9	Modena	3,9	64	Viterbo	2,73
10	Parma	3,9	65	Imperia	2,71
11	Lodi	3,8	66	Frosinone	2,70
12	Como	3,8	67	Latina	2,70
13	Verona	3,8	68	Rieti	2,67
14	Pavia	3,8	69	Pescara	2,61
15	Lecco	3,8	70	Chieti	2,59
16	Cremona	3,8	71	Teramo	2,58
17	Vicenza	3,8	72	Aosta	2,58
18	Padova	3,8	73	L'Aquila	2,56
19	Treviso	3,8	74	Bari	2,49
20	Piacenza	3,8	75	Barletta-	2,44
21	Ferrara	3,7	76	Taranto	2,43
22	Forli-Cesena	3,7	77	Foggia	2,43
23	Ravenna	3,7	78	Lecce	2,43
24	Rimini	3,7	79	Brindisi	2,42
25	Sondrio	3,7	80	Campobasso	2,18
26	Venezia	3,7	81	Isernia	2,18
27	Rovigo	3,6	82	Matera	2,06
28	Belluno	3,6	83	Potenza	2,06
29	Torino	3,6	84	Catania	2,05
30	Novara	3,5	85	Palermo	2,00
31	Alessandria	3,4	86	Napoli	1,98
32	Asti	3,4	87	Messina	1,98
33	Vercelli	3,4	88	Salerno	1,97
34	Biella	3,4	89	Siracusa	1,95
35	Cuneo	3,4	90	Benevento	1,93
36	Verbano-Cusio-O.	3,3	91	Avellino	1,93
37	Firenze	3,3	92	Caserta	1,93
38	Trento	3,3	93	Agrigento	1,92
39	Lucca	3,3	94	Ragusa	1,92
40	Bolzano	3,3	95	Trapani	1,92
41	Livorno	3,2	96	Caltanissetta	1,90
42	Pisa	3,2	97	Cagliari	1,89
43	Siena	3,2	98	Enna	1,89
44	Prato	3,2	99	Olbia-	1,88
45	Pistoia	3,2	100	Sassari	1,87
46	Arezzo	3,2	101	Medio	1,87
47	Grosseto	3,2	102	Ogliastra	1,86
48	Massa-Carrara	3,2	103	Oristano	1,85
49	Pordenone	3,2	104	Nuoro	1,85
50	Pesaro e Urbino	3,2	105	Carbonia-	1,84
51	Ancona	3,1	106	Reggio	1,74
52	Udine	3,1	107	Cosenza	1,73
53	Macerata	3,1	108	Catanzaro	1,73
54	Ascoli Piceno	3,1	109	Vibo Valentia	1,72
55	Fermo	3,1	110	Crotone	1,72

Source: questionnaire survey (225 usable questionnaires). Bold font for the province with the highest score in each region

### 10.3.2 The mental maps of north-central and southern entrepreneurs: different ratings but the same geographical hierarchy

The image of the Italian peninsula emerging from figures 10.6 and Table 10.3 would raise a spontaneous and reasonable question concerning the geographical origin of the interviewees: Is the north-south divide of the mental maps of the Italian entrepreneurs affected by the fact that most of interviewed persons are from northern and central regions? In other words, are the mental maps of Italian entrepreneurs affected by the so called self-locational effect (“the best place is the place where I am already located”), as observed in other case studies<sup>126</sup>?

**Figure 10.5: Average ratings of Italian provinces (Nuts3)**



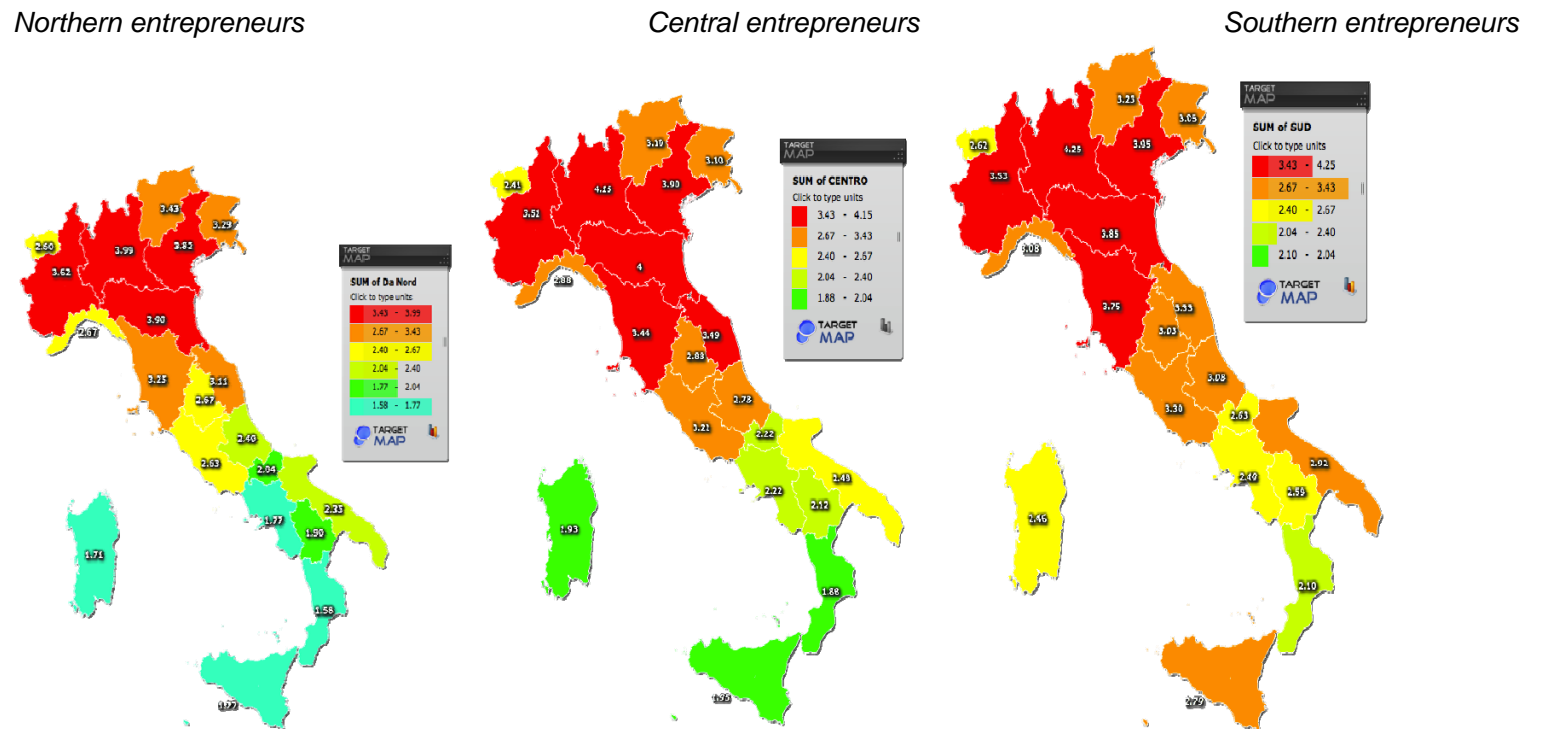
Source: questionnaire survey (225 usable questionnaires)

The breakdown of the results by location of the firms deliver a double-faced outcome (Figure 10.6 and Table 10.3). On one hand, as the multivariate analysis of variance confirms (see Table 10.4), all southern regions and some of the central regions obtain a significantly higher rating by entrepreneurs living there; that is to say, they evaluate their location better than the average of all respondents. On the other side, the macro-regional hierarchy – north, centre, south and islands - remains the same, and the regional hierarchy only slightly differs from the one observed in

<sup>126</sup> See Meester and Pellenbarg, 2006; Meester, 2004.



Figure 10.6: Average ratings of Italian regions (Nuts2) by firm location



Source: Questionnaire survey (225 usable questionnaires: 142 by firms located in northern Italy; 40 by firms located in Central Italy; and 43 by firms located in southern Italy and in the Islands)

Figure 10.5<sup>127</sup>. We can then point out that, although southern regions score better in the mental maps of southern entrepreneurs, the macro-regional and regional ranking in terms of attractiveness of Italy is essentially confirmed.

This result implies that the main spatial pattern of the mental maps of Italian entrepreneurs are independent from the place where they are located; self-locational preferences do not change the north-south cleavage present in the mind of entrepreneurs. In other words, the key aspect of the geography of attractiveness of Italy is shared by all Italian entrepreneurs, independently from where they live, making all consequent conclusions more robust.

In order to find an explanation to this result, we have to consider that the macro-regional gap in Italy is a “long-lasting issue”, rooted in the history of the country (from the second half of the 19<sup>th</sup> century), and which since then has been present and persistent, without registering any relevant change (Svimez, 2011). The endurance and clearness of this economic fact may therefore explain why the awareness of its relevance is so widely spread in the Italian public opinion, and in particular in the business community.

**Table 10.3: Ranking\* of Italian macro-regions by firm location**

Northern entrepreneurs		Central entrepreneurs		Southern entrepreneurs	
North	3,41	North	3.38	North	3.47
Centre	2,91	Centre	3.26	Centre	3,35
South and Islands	1,94	South and Islands	1,92	South and Islands	2,63

Source: questionnaire survey (225 usable questionnaires: 142 by firms located in northern Italy; 83 by firms located in central and southern Italy)

\* Arithmetic mean of Nuts2 data

### 10.3.3 The mental maps of different groups of entrepreneurs

Differently from the findings concerning the place of residence of the entrepreneurs, the results of the statistical analysis related to the breakdown by economic sector, firm size<sup>128</sup>, age and education level<sup>129</sup> of the respondents, shows that there are not significant differences in the ratings of the regions given by the different groups of entrepreneurs. Entrepreneurs belonging either to manufacturing or to services, managing either small or medium or big firms, either young or old, either scarcely educated or highly educated, evaluate homogeneously the Italian regions

<sup>127</sup> The position of some central and southern regions (Tuscany, Marche, Sicily) is slightly higher according to the mental maps of the central and southern entrepreneurs.

<sup>128</sup> Three categories: less than 50 employees; from 50 to 249; equal or more than 250.

<sup>129</sup> Five categories: lower secondary school, upper secondary school, bachelor's degree, master, phd/doctorate.

as potential location for their firms, and therefore share the same mental maps of the Italian geographical space.

**Table 10.4: Results of multivariate variance analysis by region (Nuts2) and firm / respondent characteristic**

	Macro-region	Sector	Age	Firm Size	Education level
Abruzzo	XX				
Basilicata	XX				
Calabria	XX				
Campania	XX				
Emilia-Romagna			X	XX	
Friuli-Venezia Giulia					
Lazio	XX	X			
Liguria					
Lombardy					
Marche	XX				
Molise	XX				
Piedmont			X		X
Puglia	XX				
Sardinia	XX				
Sicily	XX				
Tuscany	XX				
Trentino Alto Adige					
Umbria	XX				
Val d'Aosta					
Veneto					

X :  $p < 0.05$

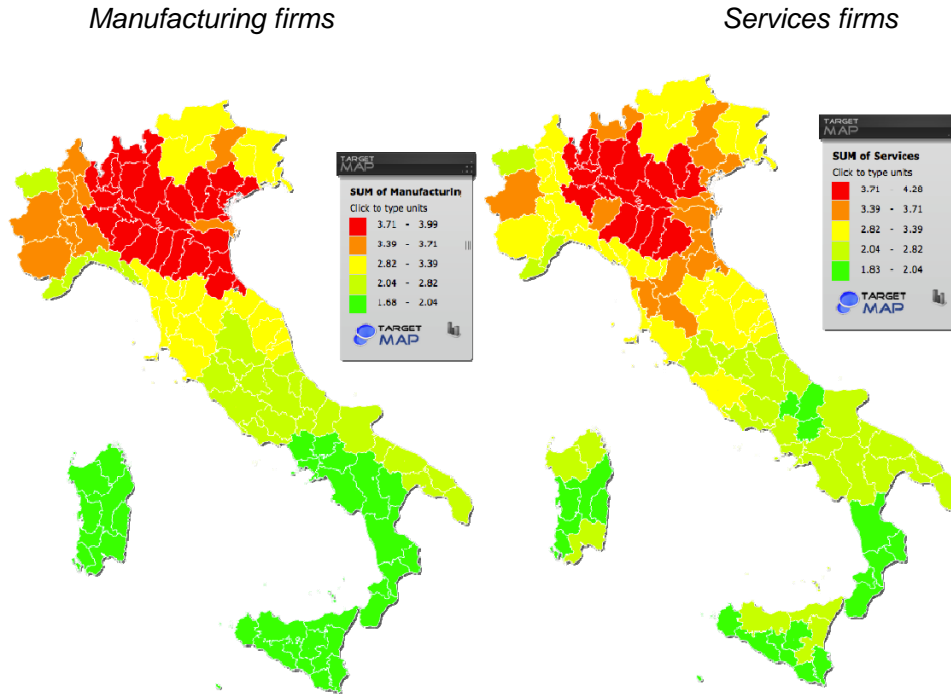
X :  $p < 0.01$

Source: questionnaire survey (225 usable questionnaires)

Some interesting differences can be found if we look more in depth at the maps, in particular at the provincial level (Figure 10.7). The mental maps of entrepreneurs belonging to services, for example, in several cases clearly assign a better mark to urban areas. In Lombardy, Lazio, Piedmont, Tuscany, Campania and Sicily, the provinces with the main Italian urban agglomerations get a higher rating by services entrepreneurs. Given the sharp prevalence of the tertiary sector in the metropolitan areas, as is the case of Rome, in Lazio, location of many public institutions and many private tertiary firms, it is an outcome easily understandable (Rome, while ranking 40<sup>th</sup> in the classification of provinces based on the preferences expressed by service firms, ranks 58<sup>th</sup> in the ranking based on the preferences of manufacturing firms). On the contrary, regions that do not encompass such big metropolitan areas, such as Emilia-Romagna, Veneto,

Friuli and Marche, and that are characterized by a highly developed manufacturing sector, get higher scores from manufacturing firms. Moreover, it evidently emerges that highly educated respondents (bachelor's degree, or higher) tend to appreciate, more than respondents with lower educational level, the most advanced Italian regions (Lombardy, Piedmont, Veneto and Emilia-Romagna).

**Figure 10.6: Average ratings of Italian provinces by economic sector**



### 10.3.4 Why are there such shapes of mental maps of Italian entrepreneurs? Some explanatory elements coming from open questions

The four provinces for which each respondent had to provide an explanation of the mark assigned were randomly extracted by the software among all the best marked provinces, located in Lombardy, Emilia-Romagna and Veneto, and the worst marked provinces, located in Calabria, Sicily, Campania, Sardinia. Their open answers were categorized using the content analysis, the "word frequency list" and the "category counts"

method<sup>130</sup>. In addition, the emerged categories/factors have been classified and ranked<sup>131</sup>.

On one hand, as regards the best marked provinces (Figure 10.8), transport infrastructures, transport services and logistics (18.6%), together with the proximity to markets and suppliers (18.3%), and the geographical location (14.7%), are the main location factors that explain the strong preferences expressed for these provinces. Accessibility and agglomeration economies therefore can be synthetically considered the keywords which explain why entrepreneurs perceive so advantageous the hypothetical location in those areas of Northern Italy. Nonetheless, other factors play also a significant role, such as local policies supporting entrepreneurial activities and public institutions, the “industrial atmosphere” and the development of the industrial system (something that confirms the explanation in terms of agglomeration economies), the presence of amenities and the quality of life, research and innovation, the availability of human capital.

On the other hand, regarding the worst marked provinces, the evaluation of the importance of the location factors is more polarized on a few issues. Transport infrastructures, transport services and logistics are even more important (26.4%) in explaining why some areas in Calabria, Campania, Sicily and Sardinia are so neglected as potential locational environments (of course, in this case it is because of their lack, or at least their insufficient efficiency). Also rather important are the weakness of agglomeration economies, that is the scarce proximity to the supply chains and to the markets, the (peripheral) geographical location, and the problems in terms of safety and crime. This last point clearly refers to the question of the crime organizations<sup>132</sup> which notoriously are strongly rooted in these regions, where they have their “headquarters” and they have the power to influence and control local economic activities. Much less important are other location factors, such as human capital, amenities, policies for enterprise creation and development, research and innovation.

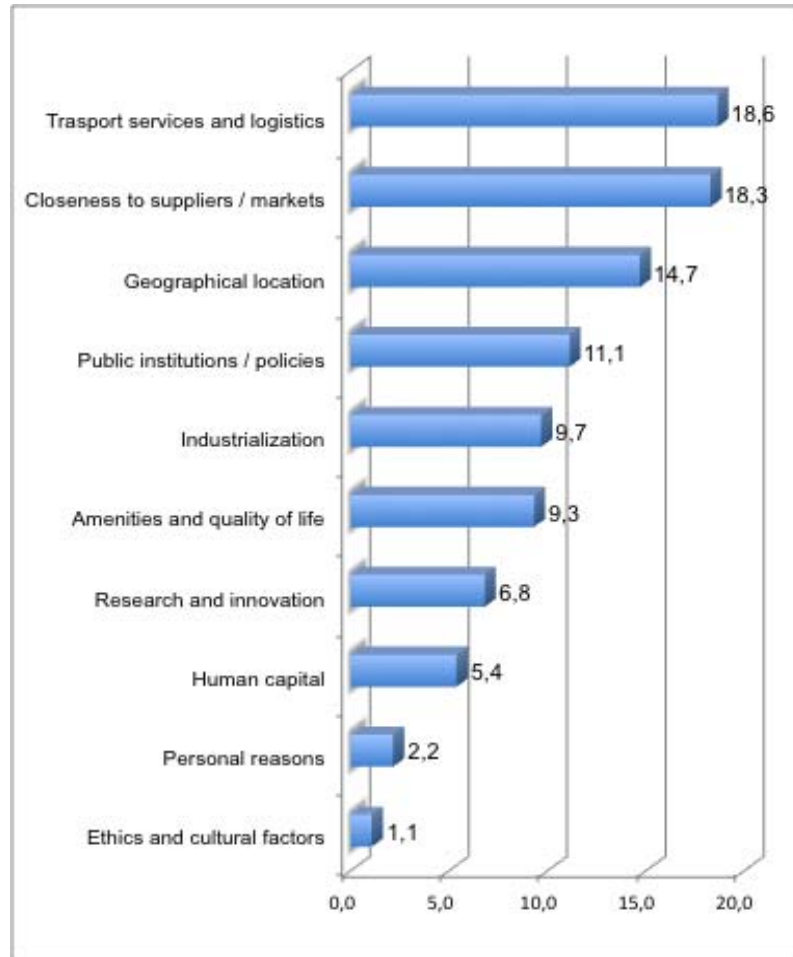
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<sup>130</sup> See also Robson (2011).

<sup>131</sup> The usable questionnaires concerning these two open questions were 107. Respondents have used 279 words referring to location factors for the best marked provinces, and 254 words referring to location factors for the worst marked provinces. These words have then been grouped in order to compose the location factors indicated in figures 11 and 12.

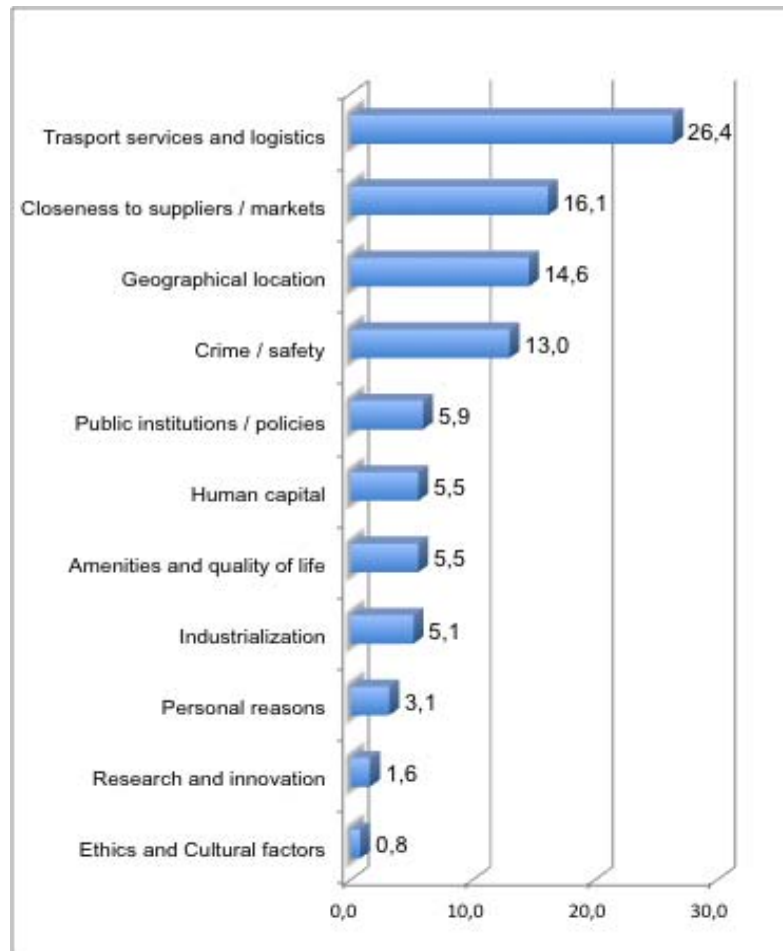
<sup>132</sup> Cosa Nostra, Camorra and 'Ndrangheta. See also Svimez, 2010.

**Figure 10.7: Location factors mentioned for the best marked provinces (% of total mentioned location factors)**



Source: Questionnaire survey (107 usable questionnaires)

**Figure 10.8: Location factors mentioned for the worst marked provinces (% on total mentioned location factors)**



Source: questionnaire survey (107 usable questionnaires)

#### 10.4 Conclusions and policy implications.

Conclusively, we can again underline the fact that the shape of mental maps of Italian entrepreneurs is clearly adherent to the most relevant spatial pattern of the Italian economic geography: the wide gap between north-central regions, and southern regions. Moreover, this shape result is quite unique in the context of the similar studies done in other countries, where some regularities emerge<sup>133</sup>.

<sup>133</sup> The comparison with the outcomes of other surveys (Germany and the Netherlands) realized within this research project (Meester 2004; Pellenbarg, 2012) points out that the shape of mental maps of the Italian entrepreneurs have some peculiarities, in particular with respect to the dominant spatial pattern and the width of the gaps. While the perception of Italian entrepreneurs is featured by the cleavage between the north-central

Italian entrepreneurs, either northern, central or southern, seem to be fully aware of the most persistent and evident feature of the Italian economic space, and, as the answers to the open questions show, also informed about the main locational advantages and disadvantages from which each macro-region provides respectively benefits or costs.

However, at the same time we can also point out that the mental maps of Italian entrepreneurs seem rather complex, and are not so easy to read. In fact, besides the macro-regional gap, other patterns/layers, although not as apparent, can be traced:

- The internal differences in northern macro-region (centre-periphery) and the role played by the “megacity Po region”, which is not only the most densely populated area but also the most agglomerated area, considering the presence of wide range of economic activities, sectoral specializations, industrial districts, urban tertiary poles, etc.;
- The role also played, even if not so relevant, by some of the most important – from the economic point of view - urban areas.

Actually, at the end the spatial pattern of attractiveness of Italy appears coherent with the complexity of the Italian geography, that, together with the North-South divide, is made of several “geographical issues”<sup>134</sup>.

In the picture of Italy originated from the analysis of mental maps of entrepreneurs, southern regions are clearly the ones featured by an extremely negative image, and are places where peculiar and unique factors, such as the presence of organized crime, explain an important “part of the story”. Only Puglia seemingly differs from the southern average. All kind of entrepreneurs share this perception of Mezzogiorno: manufacturing and highly educated entrepreneurs stress even more than the average this result.

The *policy implications* are rather clear. In southern Italy, as entrepreneurs have a definite idea about its attractiveness, policies for foreign investment attractions cannot promote and stress an image of these areas different from the reality. They have to be coherent with real conditions of the social and economic environment, but anyhow stressing and emphasizing the (even few) positive locational factors, the regions and the provinces, which perform better and appear to be relatively more advanced and dynamic<sup>135</sup>. At the same time policies should increase the real attractiveness of these areas, in particular by improving accessibility, infrastructure networks and transport services; and by fighting and

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regions, on one side, and the southern regions, on the other side, the dominant spatial pattern of the mental maps is the divide between main urban/metropolitan areas and the outer and peripheral areas, as is in the case of the German entrepreneurs, and the centre-periphery dichotomy, as is for the mental maps of Dutch entrepreneurs. Moreover, in the mental maps of German and Dutch entrepreneurs you cannot see such a wide regional and macro-regional gap. Their mental maps actually results to be flatter than the ones of Italian entrepreneurs.

<sup>134</sup> Industrial districts, the “mega-city Po region”, the balanced urban structure, the mountain – marginal and peripheral – areas, the coastal areas, etc.

<sup>135</sup> See for example Viesti, 2013; Coltorti, 2009.



eliminating organized crime, neutralizing therefore its ability to negatively affect entrepreneurship and the existing economic activities.

Instead, in northern and central Italy, territorial marketing policies should be aimed to both strengthen the image of the “peripheral” areas (for example, mountain areas) and to maintain the high attractiveness of the Po plain area and of the main cities. Furthermore, transport infrastructure and services should be kept efficient and competitive, maybe the transport infrastructure network should be widened and more interconnected with foreign countries.

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## **Part 3 Sustainable urban and regional development**

### **Chapter 11: Adaptation by Innovation: A Combined Urban Economics and Urban Governance Perspective on Climate Adaptation**

**Jurian Edelenbos, Alexander H.J. Otgaar and Peter M.J. Pol**

#### **11.1 Introduction**

This chapter suits very well in the work of Leo van den Berg for two reasons. First, it presents a new view on climate adaptation by combining two theoretical perspectives: urban economics and urban governance. This approach is line with Leo's plea for an interdisciplinary way of studying urban regions. Second, the two related theories are illustrated with examples from a real-life case study: the Rotterdam region, the place where Leo has lived and worked for many years. About the authors: Alexander Otgaar and Peter Pol both wrote their PhD thesis under the supervision of Leo and cooperated with him in many international comparative studies. In this chapter they team up with Jurian Edelenbos who is scientific director at IHS.

Climate change has a profound impact on the economic, social and physical development of urban areas in terms of heat stress, declining living conditions, water safety, etc. With an increasing share of the population living in cities climate change is also becoming more and more an urban issue. For example, delta cities such as Rotterdam face a combination of subsidence, rising sea levels and a low discharge capacity of rivers as a result of short heavy rainfall.

City governments all over the world acknowledge these problems related to climate change, and develop policies to mitigate and adapt to climate change (Alber & Kern, 2008). Especially climate *adaptation* is stressed in order to anticipate climate change that cannot be avoided (Easterling et al, 2004; Adger et al, 2006; Duit and Galaz, 2008). The impact of climate change can be modified by adaptation strategies (Smit et al, 2000). Adaptation is needed to an increasing variety of possible future situations and circumstances that may confront us (Adger et al, 2006).

In this chapter we depart from the definition that adaptation to climate change includes all adjustments in behavior and economic structure of urban systems in response to actual or expected climate stimuli, their effect or impacts in order to reduce the vulnerability of society (cf. Smit et al, 2000: 225; Smith et al, 1996). Climate adaptation can be reactive or anticipatory and adaptations can take technological, economic, legal, and institutional forms (Smit et al, 2000; Duit and Galaz, 2008). Our argument is that these adjustments to climate change often involve finding innovative ways of dealing with climate change; existing technological, economic, legal

and institutional forms are no longer sufficient in adequately counter climate change (Smit et al, 2000). In other words, climate adaptation requires innovation. Climate change is not only a threat, but is also an opportunity for innovation and the development of attractive, healthy and economically vital urban communities (Kamal-Chaoui & Alexis Robert, 2009).

We use two theoretical perspectives to elaborate this argument, i.e. urban economics and urban governance.<sup>136</sup> We use insights from urban economics and urban governance theories to explore how innovation and climate adaptation are related and how innovation can be an attractive and appealing answer to climate adaptation and at the same time enhance economic vitality of cities. We explain that a focus on innovative capacity means that urban governments should develop new skills, structures and processes (cf. Bekkers, Edelenbos and Steijn, 2011).

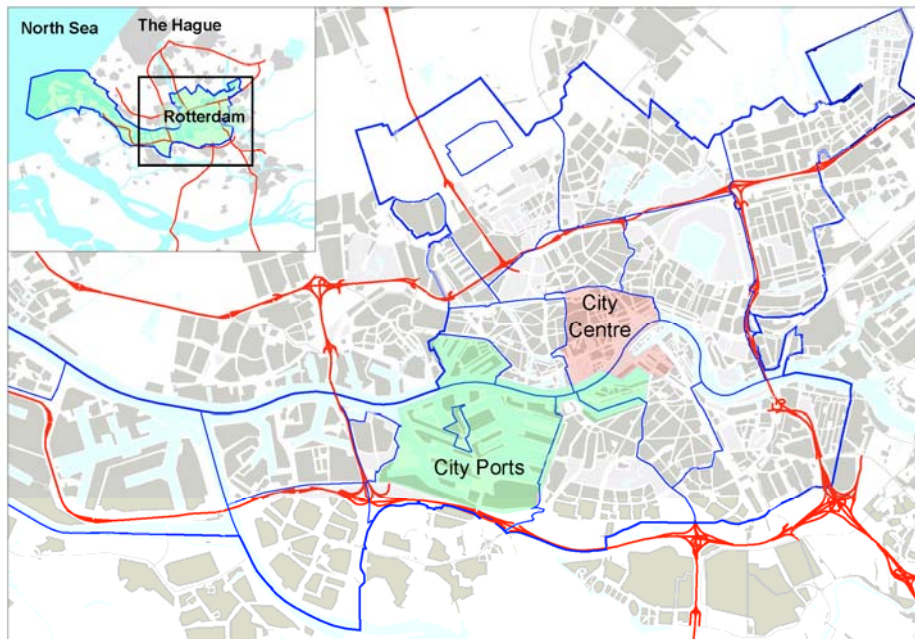
Our reasoning is illustrated with insights from the practice of the city of Rotterdam in The Netherlands based on desk research and two interviews with representatives of the City's Climate Office<sup>137</sup>. We did not conduct a full case study research, but used this case to illustrate our theoretical line of reasoning. We selected this illustrative case, located in the vulnerable Rhine delta area, because it develops a proactive and chance-oriented policy and strategy regarding climate change and climate adaptation. In the box below we provide background information on the Rotterdam case which we use as a 'running case' throughout the chapter to illustrate and enlighten our argumentation. In this article, we ultimately work towards a policy and research agenda for climate adaptation in urban areas in order to further develop and implement the opportunity approach of climate change in urban areas.

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<sup>136</sup> Of course climate change and adaptation can be approached from many social and natural science points of view such as environmental, economic, water resources, health and administrative sciences. Each discipline studies only a small and often specialized part of the issue of climate adaptation.

<sup>137</sup> Mr John Jacobs, Rotterdam Climate Proof, Climate Office, City of Rotterdam and Mr Fred Akerboom, Rotterdam Climate Initiative, Climate Office, City of Rotterdam

**Figure 11.1: Geographical position of Rotterdam within the Rijnmond delta of The Netherlands**



**Box 11.1: Profile of Rotterdam**

Rotterdam is located in the west of the Netherlands, in the mouth of the river Rhine delta: a strategic location by which it has developed as the biggest seaport and logistic hub of Europe. In terms of population it is the second city of The Netherlands with approximately 600,000 residents living in the municipality and 1.2 million in the metropolitan area. The west of the Netherlands is one of the most densely populated areas in Europe counting more than 1200 residents per square km (data: province of Zuid Holland). The Netherlands have for centuries experience with land reclamation and water management, as a large part of the country (up to 50 per cent, depending on the definition) is located below sea level. In terms of employment the Rotterdam region is relatively strong in transport and communication, financial services and business services. The share of industry in employment is relatively high compared to other cities (about 10 per cent) but lower than the national average (13.3 per cent) (Source: CBS). The City of Rotterdam considers climate change not only as a threat but also an opportunity to develop knowledge-intensive industries such as (clean) energy and adaptive building, as we will explain in the present article. The City's economic policy explicitly targets three clusters: the port-industrial complex, medical & care and the creative sector.

## 11.2 Climate change and the urban economy

### 11.2.1 The impact of global climate change on local development

Global climate change has direct and indirect impacts on the economic development of cities and regions (Abler et al., 2000). Climate change directly affects the production of (tradable) market goods and services through the impact on health and sudden losses of property (e.g. as a result of floods)<sup>138</sup>. The most climate sensitive activities are primary economic sectors such as agriculture, forestry and fishery. Other examples of climate-sensitive sectors are water management, energy, nature conservation, coastal protection, health, tourism and transport (Osberghaus et al., 2010; Schröter et al., 2005; Hall & Higham, 2005). It can be expected that climate change will enable some cities and regions to take advantage of new opportunities in sectors for which productivity is directly dependent on weather conditions, while other areas lose these activities. In this way climate change affects the relative competitive position of cities through a redistribution of income and employment. Adaptive measures possibly help regions to retain existing activities or attract new ones.

Climate change also affects the production of non-market goods and services, which cannot be traded between market actors. Climate itself is a non-market good (Abler et al., 2000) which influences the living environment and the ecosystem, but also the business environment. Households and firms have always considered climatic conditions in their location decisions (see Lambiri et al., 2007). A favorable climate is not only a matter of convenience but also of health (Githeko & Woodward, 2003) and (water) safety (Nicholls, 1995). Expectations are that the actual and predicted climate change affects the ability of regions and cities (macro level) and specific locations within these urban areas (micro level) to attract and retain population and businesses. In response to climate change cities and regions are challenged to manage the perceived risks of climate-related disasters such as floods: they need to become climate resilient.

In practice the two impacts of climate change on the production of market and non-market goods and services are strongly related to one another. If we consider the case of Rotterdam, the most relevant climate sensitive activities are water management, energy and transport. More in particular, the region's main challenge is to secure its position as the largest port of Europe. In the competition with other port cities (such as Amsterdam and Antwerp) one of Rotterdam's most important competitive advantages is its open connection with the sea which saves time and costs for the port's customers. The open connection with the sea is, however, not only an advantage: it also creates problems. Rotterdam is a vulnerable delta region of which a large part is protected by a system of dikes. The (expected) rise of the sea level demands adaptations in this system. In 2008, the national Delta Committee recommended to raise flood protection levels by a factor

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<sup>138</sup> Indirectly, climate change also has an impact on productivity in other market sectors, via buyer-supplier relations (input-output).

10 (Deltacommissie, 2008). The water safety conditions make it relatively difficult to develop business and residential locations on land or water outside the dikes. This example makes clear that accessibility of the port (economic interests) and safety (attractive location environment, climate resilience) are two potentially conflictive interests in the development of Rotterdam. The solution could be found in the construction of more 'closable water barriers' such as the existing Maeslandtkering.

### 11.3 The economics of adaptation and the adaptation economy

Urban governments can respond to climate change by either doing nothing (a defensive, passive approach) or by developing a climate adaptation strategy (an offensive, proactive approach). Various scholars and policy makers suggest that cities are challenged to become climate resilient, thus being able to survive extreme weather conditions and a rising sea level. An economic approach is needed to determine if the benefits of adaptation measures outweigh the costs, and to choose among different competing alternatives (Osberghaus et al., 2010). In the 'economics of adaptation to climate change' (World Bank, 2009) the costs of adaptation measures are to be compared and calculated with the value of capital (exposed assets) and the risks of damage.

For urban areas the investments in climate adaptation not only generate benefits through secured capital, but potentially also through the creation or upgrading of jobs, and hence in additional income for local firms and residents. Many studies on the economics of adaptation seem to ignore these employment effects, while they could provide additional arguments for urban regions to promote public and private investments in adaptation (Fankhauser et al., 2008). Direct employment effects can, for example, be expected in replacement industries: new activities that anticipate climate change (from high carbon to low carbon). The rise of this 'adaptation economy' (also referred to as 'green economy') generates additional jobs if the urban region succeeds to export adaptation-related products, services and knowledge to other places, assuming that this is a good investment option<sup>139</sup>.

The adaptation economy provides opportunities for regions to develop specialized clusters that benefit from 'local buzz' and good access to 'global pipelines'. The ability of a region to become an important hub in the adaptation economy is path-dependent: important conditions are the inherited economic structure and the existing knowledge base (Van Winden, Van den Berg & Pol, 2007). Particularly relevant is the degree to which a cluster is able to anticipate changes in the demand for adaptation and the development of new technologies. Urban economists know that small firms play an important role in this process of innovation: low entry barriers and high levels of rivalry stimulate innovation and entrepreneurship

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<sup>139</sup> Investments in the "adaptation economy" require consideration of opportunity costs: investments in other sectors of the economy (including infrastructure, education, etc.) could be more efficient.



(Porter, 2000; Glaeser, 2011). Also demand conditions matter: in climate adaptation not only the government but also private businesses can stimulate cluster development through their demand for new concepts.

The potential development of a regional adaptation economy plays an important role in the strategy of Rotterdam in response to expected climate change. Due to its strategic location in the Delta of the Low Countries the region combines high vulnerability with a high population density. To secure capital in the future investments in climate adaptation are needed: apart from improvements in the system of dams and dykes that protects the area (and the rest of the Netherlands) other innovations are needed to 'live with water' instead of 'fighting against water'.

With the Rotterdam Climate Proof programme – part of a broader Climate Initiative which also aims to reduce carbon emissions – the municipality wants to keep the city safe and attractive, while facilitating the development of an adaptation economy. The regional economic structure seems compatible with this ambition. Many businesses and institutions have developed knowledge and expertise on how to adapt cities to climate change, notably on the question how to deal with the changing supply of water (Otgaar, Van Tuijl & Van Winden, 2011; Van den Berg, Otgaar & Van Tuijl, 2009). Among the businesses are relatively large engineering and construction firms (e.g. Van Oord, Boskalis, Arcadis, Dura Vermeer) but also small firms such as architects and specialised consultants. One interesting example is DeltaSync which presents itself as “a multidisciplinary design, research and consultancy firm specialized in water-based urban development”. Another example is Waterstudio.nl, an architectural firm that “has taken up the challenge of developing solutions to the problems posed by urbanization and climate change”.

Considering the knowledge base, the region is endowed with two universities: Erasmus University, specialized in economics, management and health, and TU Delft, specialized in technology and engineering. In addition there are various other knowledge institutions, such as Deltares, specialized in research on water, soil and the subsurface. Businesses, governments and knowledge institutions are involved in various networks and partnerships with the aim to develop and implement new adaptation measures, taking into account technological, economic and governance aspects. The Rotterdam region is quite successful in exporting climate adaptation concepts to other cities such as Ho Chi Minh City, Jakarta, New Orleans and Melbourne. The international network Connecting Delta Cities – of which Rotterdam is an active member – facilitates the exchange of knowledge between cities and helps to take advantage of business opportunities. With the expected investments of the national government in the protection of the Dutch delta (the Delta Programme) local demand conditions seem to favor the development of Rotterdam's adaptation economy.

## 11.4 Conclusion

From an economic point of view climate change has an impact on the location decisions of firms and households, and the resulting spatial distribution of economic activities. Vulnerable urban regions need to anticipate (expected) climate change by investing in climate adaptation, taking into account the costs and benefits of such measures (the economics of adaptation). This local demand for adaptation creates opportunities for the same regions to become an important centre for innovation and business formation around new adaptation measures. The development of an 'adaptation economy' generates jobs and income that regions should be aware of when they consider investments in measures to secure climate resilience.

As we explained the ability of a region to seize the economic opportunities presented by climate adaptation depends on the economic structure and the knowledge base. This implies that some regions are simply in a more favorable position than others. In the next section, however, we will argue that regions are to some extent also able to influence the development of their adaptation economy.

## 11.5 Climate change and urban governance

### 11.5.1 Responding to climate change through adaptive governance

The development of an adaptation economy in urban areas has to be facilitated by cities and urban regional governments. Insights from (urban) governance help us to understand how governments and other stakeholders can create a local environment that stimulates learning and innovation. Tompkins and Adger (2004) argue that climate change demands urban governments that are able to explore and exploit a way of urban governance that provides resistance towards external disturbances, but also and above all creates adaptability for reorganization when external circumstances becomes too disturbing and threatening. Urban governments need to build a capacity to devise an urban system that can absorb and accommodate future uncertain events (Folke et al, 2005). This is what Tompkins and Adger (2004) call 'adaptive governance'. We further build on this concept by approaching and elaborating it as an approach to increasing vulnerability of urban areas to climate change that is more focused on developing and implementing innovation. In other words, the governance of climate adaptation needs a governance mode that is in itself adaptive of nature. In this way, urban governments are more capable to handle the fundamental uncertainties of climate change (Weick and Sutcliffe, 2001; Folke et al., 2005). Adaptive governance is also an approach is that is capable in facing climate change as an opportunity for urban vitality. Adaptive governance relies on polycentric institutional arrangements that are nested and operating at multiple geographical and jurisdictional scales (Betsill and Bulkeley, 2006), it is focused on redundancy and variety of actors, ideas, and relations (Bekkers, Edelenbos and Steijn, 2011). These redundancies are important for the creation of 'innovative capacity'. In this

way new adaptation measures can be created in adaptive collaborative actor networks that can enhance urban economic vitality. Adaptive governance is needed to create conditions for innovative capacity and to utilize economic opportunities of climate adaptation. In the next paragraphs we will discuss some of these conditions.

### **11.6 The presence and use of open, informal and trustworthy actor networks**

A first condition is the presence of an open and informal network of diverse actors. An open and informal actor network refers to the absence of boundaries and the free flow of ideas, knowledge, information and experiences (Bekkers, Edelenbos & Steijn, 2011). Those informal networks could enhance the adaptive capacity of governance systems, because they can provide access to different kind of resources (or capital), for example information, financial resources and (legal) power (e.g. Portes, 1998; Thompkins & Adger, 2004). In economic and business administration literature this is called 'open innovation' which refers to the free and interactive exchange of knowledge, information and experience (discussing and testing new ideas and concepts) in intra- and inter-organizational networks (Chesbrough, 2003; von Hippel, 1988).

Open, informal networks implies the existence of an open culture and a safe context in which 'trial and error', 'reflection', and 'learning' can take place without penalization for making 'mistakes' or for not realizing results at once. Openness also refers to the availability of a variety of different perspectives and different bodies of knowledge that can be utilized and challenged. It refers to a free and informal space, network or niche, in which there are not too many restrictions for developing new and creative ideas and concepts. Innovation often takes place in the 'grey, informal' areas between formal organizations (Nooteboom, 2006; Edelenbos, 2005). Therefore, it is important that in case of climate adaptation, business, government and knowledge institutions define pilots together, which they define as temporary explorations with the joint intention to further develop and implement the created innovative ideas of climate adaptation (Tompkins and Adger, 2004).

A free flow of ideas, knowledge and experiences will not occur if actors in the networks are afraid that the knowledge and information that they provide will be used against them in such a way that their interests are harmed (Bekkers, Edelenbos & Steijn, 2011). Actors have to meet face to face in a physical presence. These direct interaction and meeting places are important for developing trust (Edelenbos and Klijn, 2007). The quality of the relationships between the actors involved in the cross sector networks is of importance. Without a certain amount of trust among actors no innovative ideas are developed that is needed to adapt to climate change. Trust can facilitate innovation because uncertainty about maximizing self-interest at the expense of others is reduced and the feeling that other actors will exercise their goodwill in the search for innovative solutions is increased (Zand, 1972; Nooteboom, 2002; Edelenbos and Klijn,

2007). By proving continued trustworthiness, a local climate of trust is produced that fosters the exchange of vital information in order to innovate (Maskell, 2000, p.114-115). Innovation (technological, policy, etc.) is crucial to generate climate adaptive strategies (Smithers & Blay-Palmer, 2001).

Moreover, adaptive networks, in which relations are trustworthy, are better equipped in countering setbacks and unforeseen developments (Nooteboom, 2006; Luhmann, 1990, 1995; Lane & Bachmann, 1998), which are common to the unpredictable nature of climate issues and developments (Folke et al, 2005). In other words, governance of climate adaptation is surrounded by unpredictability and needs adaptive governance that is fuelled by trustworthy relationships in tripartite cooperation among knowledge organizations, business organizations and governmental institutions (Klijn et al, 2010).

Rotterdam is a good example of a city which tries to stimulate innovation. In Rotterdam a tripartite network cooperation (business, government and knowledge institutions) evolve with the name Clean Tech Delta. Its aim is to stimulate innovation and product development in the fields of water, energy and climate. The network facilitates innovations in which technical solutions (responsible use of energy and resources) are combined with a strong business case and understanding of how to change the behaviour and mentality of firms and households. Particularly the future (re)development of the City Ports area (Stadshavens) in Rotterdam, with a size of about 1,600 hectares outside the dikes, is partly used for experimenting with new concepts as "floating districts". There is an education centre: two polytechnic institutes are located at Heijplaat in City Ports. Their students learn skills within Stadshavens. Moreover, there is an expertise and innovation centre: research institutes, companies and governments develop new expertise in Stadshavens on floating concepts. And within a construction centre, floating buildings are build at Stadshavens and shipped to other locations (in Rotterdam, such as the floating pavilion, but also elsewhere in the world). The new concepts of delta technology and construction technology can be attractive for tourists to visit (see Otgaar, 2010).

### **11.7 The presence of active operating boundary-spanners**

However, the meeting in the cross sector network of people coming from different domains, sectors, organizations and levels does not automatically occur. Often, active management, so-called boundary spanning activities, is required in order to organize these interconnections (Williams, 2002; Edelenbos and Klijn, 2006). Leifer and Delbecq (1978, p.40-41) have defined boundary spanners as 'people who operate at the periphery or boundary of an organization, performing organizational relevant tasks, relating the organization with elements outside it'. These managers stimulate interactions between people at the intersections of different organizations in an informal area of multi-actor cooperation where (diverging) perspectives, values and information meet, leading to innovation and adaptation.

Climate adaptation is an issue that traverses domains of water management, spatial development and energy. It needs boundary spanners that interlink these different domains in order to bring climate adaptation into existing practices and procedures. At the same time, climate change is multi-scale (local, regional, national, trans-national), which also requires cross-boundary orientation (Betsill and Bulkeley, 2006). The boundary-spanning manager is therefore oriented on creating connections between actors from different domains and scales. These boundary spanners facilitate the interaction, synchronization, and mutual adaptation between actors coming from different domains and scales in jointly finding appealing and acceptable climate adaptation programs. Oftentimes boundary organizations are realized that crosses internal segments and organizational structures.

In Rotterdam the “city’s climate office” can be seen as an example of such a boundary organization. The staff members are on the payroll of other municipal departments. The climate office has its own programme and its own budget to achieve climate related goals, such as a substantial reduction of carbon emissions and achieving a climate proof urban region. To operate in an effective way they have to cooperate with other municipal actors, with relevant companies and education and research institutes. In this way cross-sector interaction is stimulated. A similar organizational model has been applied in the case of City Ports (*Stadshavens*). City Ports works amongst others on a programme fostering innovation in climate products: the Clean Tech Delta. In this programme, a variety of governmental, business and research organizations are stimulated to develop innovative products in the field of climate mitigation and climate adaptation. The employees of City Ports are all on the payroll of either the Rotterdam City Development Corporation or the Rotterdam Port Authority. Employees from the climate office as well as City Ports have to operate as boundary spanners in order to be effective. They need the cooperation of decision makers and employees of the other public organizations involved to achieve their goals.

## 11.8 Conclusion

Adaptive governance approaches are necessary in coping future uncertainties and city vulnerabilities due to climate change. From governance literature we derived insights in facilitating conditions that are required to generate innovative capacity for climate adaptation which in turn can strengthen the economic structure of cities. Conditions for adaptive governance are (1) open, informal and trustworthy actor networks, and (2) boundary spanning management in which actors act on the boundaries of their organization and are focused on co-evolution between sectors and scales. These factors highly influence the local urban governance capacity to act adaptively to climate change.

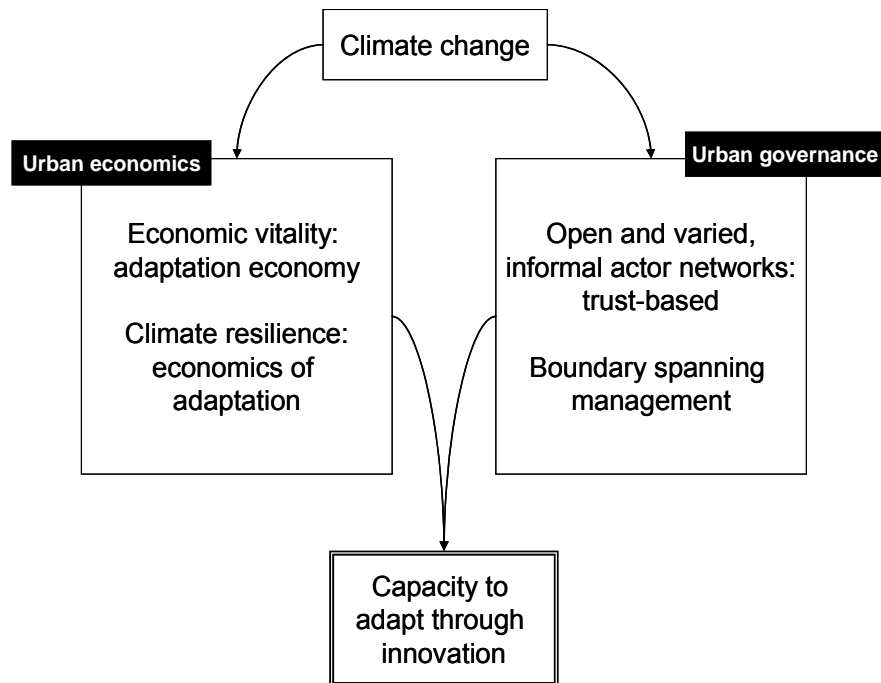
## **11.9 Conclusion: towards a policy and research agenda for climate adaptation through innovation**

### **11.9.1 Combining insights from urban economics and urban governance**

The implications of climate change for urban economics and urban governance (as we discussed above) are summarized in figure 11.2. In a combined urban economics and urban governance perspective we started from the assumption that climate change makes it important for cities to invest in their capacity to adapt through innovation. In our view innovation not only comprehends technological advance and product development (e.g. the development of floating cities, water squares or green roofs), but also new forms of cooperation and coordination under the heading of 'adaptive governance'. The capacity to adapt through innovation depends on (urban) economic aspects, but also on (urban) governance-related aspects as we will explain below.

On the economic side of the framework we argue that the benefits of adaptation should outweigh the costs, in line with the 'economics of adaptation' philosophy. Relevant factors in this cost-benefit analysis are the concentration of (human) capital and the risks of damage: the vulnerability to climate change. Vulnerable cities are challenged to become climate resilient which requires investments in infrastructure and changes in behavior, but also changes in the economic structure. Climate change should not only be considered a threat but also an opportunity to upgrade the vitality of the local economy, with the 'adaptation economy' as an emerging sector. The ability of a city or region to take advantage of this opportunity depends on the economic structure and the knowledge base, but also on governance factors.

**Figure 11.2: A Combined Urban Economics and Urban Governance Perspective on Climate Adaptation**



The governance side of the framework states that climate change cannot be predicted: the future is uncertain and therefore adaptive governance models are needed. Climate change urges vulnerable cities to develop open and varied informal actor networks that enhance the ability to innovate through adaptation. We emphasize that the development of such networks requires a high level of trust among the various stakeholders. Another important element of adaptive governance is boundary spanning management: actors who are able and willing to facilitate the development of connections between various stakeholders. We argue that adaptive governance is required not only for the 'governance of adaptation' and to stimulate innovation, but also to enable the development of a climate resilient city with a vital (adaptation) economy. The governance of adaptation and the economy of adaptation go hand in hand to realize an adaptation economy. Not only technological innovations, but also governance innovations are to be seen as potential export products for cities that are vulnerable to climate change.

### 11.10 Policy and research implications

A combined urban economics and urban governance approach to climate adaptation has made clear that cities are challenged to adapt through innovation. For vulnerable cities the question is how to take advantage of the economic opportunities presented by climate change. We

think that at least three issues deserve the attention of policy makers and researchers: (1) guiding principles, (2) competition and (3) scale.

### 1) *Guiding principles*

We argued that informal, open and trust-based actor settings are important for the development of experimentation space and the development of innovative ideas for climate adaptation measures. It is important that urban governments set clear policy frameworks and rules that communicate the boundaries in which climate adaptation measurements should be developed and implemented. Business companies in the field of climate mitigation and adaptation often want to get to know these policy boundaries and frameworks in order to get some certainty to what extent and in which direction their innovative climate adaptation measurements should go.

However, the risk is that urban governments approach climate adaptation as a norm and criterion and elaborate numerous and detailed policy rules which has to be formalized in all kind of regulation. These strict policy rules restrict companies and investors but also governments themselves (as they are also important initiators of urban development) in their ambition to innovate. Climate adaptation in this way gets a negative denotation: rules and regulations are becoming synonyms to costs, bureaucracy and control (Van Buuren et al, 2010). An opportunity-based approach to climate change and adaptation means that governments do not formulate detailed, rigorous, and numerous rules and regulations, but come to inviting guiding principles. The essence of such a set of principles is that they are not focused on prohibitions (of what is not possible), but on positive incentives focused on speeding up the process of developing and realizing climate adaptation measures. At the same time this means that these guiding principles are generally formulated, and they do not cause much 'rule-pressure' and administrative burden for innovators. Innovation gets otherwise smothered by the bureaucracy, control en tight rule-making. Research indicated that trust is important for innovation, on the other hand tight and numerous rules often prohibit the evolution of trust (Nooteboom, 2002).

The important question (for policy-making and research) is how to formulate a set of guiding principles which at the one hand give enough direction and certainty towards future solutions for climate change, and at the other hand provides space for self-organizing powers from society and business to really counter the potential risks and vulnerabilities of climate change for urban areas? How do stimulating policy guidelines have to be formulated in order to give clear direction, without becoming bureaucratic tight rules and regulations, and therefore 'killing' for innovation in climate adaptation? That is one important policy and research question for the near future in coping with climate change.

### 2) *Competition*

Competition is an important condition in the development of a local adaptation economy. The performance of a climate adaptation cluster depends not only on the presence of anchor firms (with access to global



networks), but also on the number of small and medium sized firms and knowledge institutions competing and cooperating with each other. The challenge for urban governance is to create an environment that facilitates the development of a successful cluster: e.g. by improving factor conditions (such as the supply of qualified labor and dedicated infrastructure) and by stimulating entrepreneurship and the exchange of knowledge. Climate adaptation requires new (Schumpeterian) combinations bringing different disciplines and industries together. For policy makers and researchers it would be interesting to find out what policies and incentives are most effective and cost-efficient to reach that aim.

Another way to stimulate the development of the local adaptation economy is to improve local demand conditions. Governments can take their role as 'launching customers' in the development of climate-related products and services, anticipating future demand from other public customers (in other cities) as well as private customers. The fact is, however, that governments – particularly national governments – are often risk averse: they prefer to cooperate with relatively large firms that are sometimes less innovative than their smaller counterparts. From a political point of view this strategy is understandable and legitimate, but from an economic point of view the question is how to generate jobs for smaller and medium sized firms as well? One option is to adjust tendering procedures by giving incentives for innovation and cooperation with SMEs.

### 3) *Scale*

Another issue that requires insights from both economics and governance is the scale of a local adaptation economy. Innovation benefits from local buzz as well as from access to global networks. Cities that want to become one of the hubs in the global adaptation economy need to develop sufficient 'critical mass'. On the one hand, regional cooperation can help cities to create mass, enlarging the cluster region and taking advantage of complementarities (e.g. between knowledge institutions). On the other hand, longer distances complicate the exchange of tacit knowledge for which face-to-face communication is often required.

From an economic point of view the question is whether the benefits of regional cooperation in the development of a cluster outweigh the costs. If we consider the governance side of our framework, the question is: how can cooperation beyond scales and organizational boundaries be developed and maintained? In general longer distances make it more difficult to develop trust-based networks. A regional approach that crosses scales requires a form of boundary spanning that stretches along the boundaries of municipalities. In practice we see that cluster policies are developed on the level of cities, provinces and countries while cluster regions seldom coincide with administrative entities and jurisdictions.

These three questions are interrelated, of course. The questions of economies of scales requires local governments and cities that are looking and cooperating beyond their jurisdictions and develop trust-based networks with other (regional, local and national) governments and business partners, especially small businesses that are focused on small

experimentations and innovation. This chance orientation requires an urban government that is capable at developing guiding principles to stimulate a business environment that is focused on climate adaptation by innovation. This opportunity way of working seems to be a promising way to cope with climate change and needs a combined orientation of urban economics and urban governance.

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## **Chapter 12: Delivering sustainable urban solutions: A new chapter of corporate involvement in urban management**

**Willem van Winden**

### **12.1 Introduction**

This chapter has been written in honor of Prof. dr. Leo van den Berg, who was early to stress the role and responsibility of large corporations in urban management.

Cities all over the world dedicate efforts to become more “sustainable”. City administrations have set ambitions to reduce energy consumption and CO<sub>2</sub> emissions, to shift from fossil fuels to renewables, and to eliminate waste and pollution.

New solutions are being developed and implemented to achieve these ambitions. Typically, these solutions are shaped in a complex interplay between companies –(they develop and sell the technologies), city administrations, citizens, universities/knowledge institutes, and other urban stakeholders.

In this light, this chapter explores the newly emerging complex relation between corporations, city administrations, and other urban stakeholders, assuming that the effectiveness of collaboration between cities and corporations is a key success factor for sustainable urban development.

We argue that companies need to develop urban management skills when they want to be successful in this new, emerging market; they must learn how to collaborate with citizens, housing corporations, authorities, and other urban stakeholders. They can not just “sell” their sustainable technology solutions to cities: they need to learn how to deal with citizens and the complexities of the urban context, and gain more knowledge and experience in the field of integrated urban development and stakeholder participation.

At the same time, urban authorities must learn new ways to engage with companies. New forms of procurement are needed, allowing for innovation; City administrations must learn to effectively to engage in new complex partnerships that deliver sustainability solutions, to approach firms not just as profit-making entities but recognize (and capitalize on) their sincere commitment to sustainable development; how to balance corporate interests with citizens’ needs, and how to scale up pilot projects.

The chapter is structured as follows. In section 2, we discuss the involvement of (big) business in city management, from two rather different views: the critical view (seeing companies as aggressive profit maximizers), and the shared value approach (that identifies common ground between corporate strategy and social goals such as sustainable urban development). In section 3, we elaborate the specific lens of this chapter: the city-business connection in the development and implementation of urban sustainability solutions. We briefly present two concrete examples of

how large companies are engaged in urban management. The first one is the Philips Lighting division, that implemented a new lighting system in a neighborhood in Tilburg, The Netherlands, in close collaboration with the city administration and the citizens. The second case is TNT, an express delivery firm that collaborates with cities to develop more sustainable express solutions. Each case highlights specific dimensions and aspects of the new corporate involvement in urban management. Finally, in section 4, we draw some conclusions and present critical issues and dilemmas, again contrasting the critical view with the “shared value” approach. Also we suggest some avenues for further research.

This chapter is based on a literature study, and on semi-structured interviews with key informants from Philips, TNT, and Amsterdam Smart City, an organization that initiates and implements sustainable solutions in the greater Amsterdam region, in collaboration with companies and other urban stakeholders<sup>140</sup>.

## **12.2 Corporate involvement in urban management: two perspectives**

The connection between city government and large corporations –and the role of corporations in the governance of the city- is framed in different ways in the literature. In the critical urban literature, large corporations are depicted as profit maximizing entities, predatory actors, exploiting urban resources (human capital, the environment) rather than contributing, and putting private profit above social well-being; not committed at all to their city context, and relocating elsewhere when the profit promise is higher. From this perspective, the corporate “role in urban management” is to use their power in local policy arenas to steer local policy agenda’s promoting corporate interests as much as possible (Harvey, 1989; Swyngedouw, 2002). In various forms of urban boosterism, companies will advocate large-scale urban developments or projects (with big business interests), typically making the token argument that these projects have “trickle down effects” such as new jobs for unemployed residents, and other economic spillovers.

In a classic study, Grabher (1993) shows how the large coal and steel conglomerates in the German Ruhr area were able, in the 1960s and 1970s, to deeply influence the regional policy agenda. These industries were clearly declining, but they managed to get substantial state protection and subsidies. Their leaders were part of the regional elite and were able to steer policy agenda’s. By putting so much effort at backing the old, declining but powerful corporations, the necessary renewal process of the regional economy was postponed and slowed down. More recent accounts point out that industrial lobby’s old boy’s networks still work in a similar way in many cities. Local elites tend to influence local development agendas in favour of their own interests, paying only lip service to sustainable and long-term development of cities and regions (see e.g. McCann, 2011).

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<sup>140</sup> The author would like to thank Luis de Carvalho for his constructive comments on an early version of this chapter.



From a different angle, Klein (2009) heavily criticizes the dominance of big corporations and their “logos”, pointing at the privatization of public spaces and the omnipresence of corporate advertising; the exploitation of urban youth as marketing device for lifestyle companies such as Nike and Coca Cola; the predatory expansion of large retailers like Walmart, that engage in price wars to eliminate local retailers (and raise prices again after elimination); and many other corporate evils. Graham et al. (2001) observe the discriminatory nature of ICT infrastructure investments by private providers: cherry-picking implies that wealthy parts of the city are always the first to be upgraded to the newest infrastructures, thus helping to deepen urban divides. Several studies note the risk of “lock-in” (and subsequent abuse of excessive corporate power) when city administrations outsource critical urban services or infrastructures to large companies (for example in IT or urban transportation). Even if contracts have a fixed term, contractors may become very powerful, especially when they control critical infrastructures and have made specific investments. The accumulation of investments and expertise may in fact lead to a situation where the municipality faces very high switching costs when it wants to have a new contractor, leaving the incumbent in a very convenient position to extract excessive rents, at the expense of taxpayers.

In a second strand of the literature, the relation between cities and corporations is viewed very differently. The city is framed as the “competitive context” in which firms operate, and the focus is how the interaction takes shape, and can be mutually beneficial. More than a decade ago, Van den Berg et al. (2000) published the study “City and

Enterprise - Corporate Social Responsibility in European and US Cities”, exploring how individual business companies and organized private enterprise are meeting challenges and help to solve problems in large and medium-size towns. The authors analyzed examples, in Europe and the US, of positive contributions that businesses can make to urban challenges such as poverty, unemployment, crime and social exclusion, and how they can help to improve education, amenities, and the quality of the living environment. The authors argued that, to a large extent, it is in companies’ business interest to invest –in various ways- in their urban environment. But they found that CSR activities are more about rather piecemeal interventions than really about changing the conditions of the community.

Ten years later, Michael Porter (2009) also called attention for the link between the firm and its wider environment –albeit from the corporate perspective rather than directly linking it with urban development. In his “shared value” concept, Porter suggests that companies can greatly benefit from adding a social dimension (i.e. environmental concerns, fight against poverty, unemployment, etc.) to their value proposition: this may clearly distinguish them from competitors, and win the appraisal of clients that are increasingly sensitive to the social impacts of corporations. Each company should “identify the particular set of societal problems that it is best equipped to help resolve and from which it can gain the greatest competitive benefit”. In Porter’s view, strategic CSR should be directed to social causes that present an opportunity to create “shared value”: a meaningful benefit for society that is also valuable for the business. Shared value is thus defined as “policies and operating practices that enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the communities in which it operates” (Porter and Kramer, 2011, p. 66). Creating shared value is not about the peripheral concerns of the company, but it moves directly to its core strategy, as value creation becomes a joint effort of the company and community, being integral to competing and profit. Porter and Kramer (2011) put forward three ways through which companies can create shared value: i) by reconceiving products and markets, ii) by redefining productivity in the value chain and iii) by enabling local cluster development.

Both van den Berg and Porter conceptualize the city/region as part of the firms’ competitive context, the source of critical resources on which the firm depends: human resources, infrastructure, client base, legislation, etc. Both argue that investing in this context makes business sense., and make the point that (city) governments should be open to facilitate and support corporations that are ready to address urban challenges.

The two views on the city-corporation nexus discussed in this section are rather contrasting. The critical literature depicts large corporations as ruthless profit maximizers, exploiting local resources, at the expense of local communities. The empirical record for this point is strong, and there are good reasons to be critical about the true rationale of corporate behaviour, and to provide checks and balances to restrict corporate power and influence. At the same time, an overly critical or negative attitude



towards big business may be contested, first of all because corporate knowledge and expertise are critical in developing sustainability solutions, and second because there indeed may well be such a thing as “shared value” in this domain: the implementation of urban sustainability solutions fits with the ambitions of many cities, and is in line with a broad social movement towards more sustainability. It is also a large and growing market for companies, characterized by rapid technological development.

### **12.3 Cities, sustainable innovation, and urban management**

In this section, we focus on a specific emerging field of interplay between cities and big corporations, namely the city-business connection in realizing urban sustainable development.

Cities throughout the world have formulated ambitious goals and targets for energy saving, CO<sub>2</sub> emission reductions, promoting the use of renewable energies, waste reduction & recycling, promoting clean water and air, maintaining biodiversity, etc. These urban ambitions can be seen as part of a wider societal “green” movement, fuelled by a big wave of technological innovations (mainly in ICTs and environmental technologies). Many new solutions have become available, holding the promise to run the city more efficiently, to save costs, to improve the quality of life of citizens, and to meet the above-mentioned ambitions regarding sustainability and tackling climate change. The list of new “smart” solutions is long: cheap ways to locally generate solar energy or other forms of durables; smart grids to enable two-way traffic on electricity grids and selling locally produced energy surpluses; new energy storage systems, electric car schemes; smart logistics systems, sensing, tracking & tracing systems that help detect holes in sewage and waste systems, and more in general quality control of urban infrastructures; new types of lighting systems that save energy and increase safety, etc.

For a large and growing number of companies, the development and implementation of these types of technologies has become a core business. Large multinationals like IBM, Cisco, Siemens and Philips have set up “smart city” programmes, often in close collaboration with city administrations. IBM engages in deep partnerships with a limited number of cities, to set up pilot sites and test solutions (to be rolled out afterwards); Siemens introduced City Account Management, a dedicated team of 60/70 people focusing entirely on cities as key markets, and it set up 3 centres of competence where it accumulates knowledge on urban development and management. These large players claim that they can offer solutions for a number of today’s most pressing urban issues. The big companies lead the pack, but there are many smaller and emerging players as well.

Typically, sustainable urban innovations cannot be “sold” as a one-off product or service to a single department or unit. They are complex product/service packages, delivered by consortia of suppliers that unite in specific organizational setups with specific business models, and often there are many stakeholders involved, with potentially different interests. Let’s take the case of rolling out a smart energy grid. A number of

stakeholders may be involved in such a project: housing corporations, energy companies, IT companies, banks, the municipal department of public works, and last but not least, the citizens. In many cities across Europe, one can observe new consortiums and business models being developed, that replace old ones<sup>141</sup>; City administrations and companies alike have to assume new, unknown roles in the context of such complex projects, with new types of contracts, business models, and organizational settings.

Private companies, big and small, have the technological knowledge and competences, and create technologies and solutions. But they can't do it alone: to arrive at effective solutions they have to team up with complementary partners in consortiums, with the urban authorities, with knowledge institutes, and with citizens (the end users). To do so successfully, companies need to develop "urban management skills". Likewise, city administrations must learn how to position themselves vis-à-vis corporate innovators. A number of questions pop up: how to engage in what types of partnerships and under what conditions, what type of contracts are needed, how to control outcomes and manage risks, balancing corporate interests and citizens' needs. Managing and implementing urban sustainable innovations is by definition a collaborative effort of corporate innovators and urban managers, and very little is known how to do it in a good way. New policy arenas are opening, in which powerful corporations have substantial business interests to get "their" solutions implemented.

### **Two examples**

This section, as an illustration, contains two recent examples of corporate involvement in the development and delivery of sustainable urban solutions. The first is Philips, that develops innovative and energy saving urban lighting solutions; the second case is TNT, an express company that develops more sustainable ways of express delivery.

#### **Case 1. Philips: new lighting solutions**

Philips is a big player in lighting; the company develops new lighting solutions and platforms for cities and neighborhoods. Rather than a "vendor" of a product, Philips positions itself as co-developer of urban solutions, in collaboration with stakeholders and clients (the city government, and citizens/firms in the city). An example may illustrate the point. In a residential neighborhood in the Dutch City of Tilburg, Philips installed a "light-on-demand system", in close collaboration with the municipality and the inhabitants. The municipality wanted to save on energy costs and reduce CO2 emissions, and the residents want more safety and better lighting in their streets. Lighting is responsible for about 14% of total global energy consumption, so saving on lighting (by using more energy efficient solutions) can bring substantial financial and environmental returns.

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<sup>141</sup> Vested interests may suffer, or take part but try to slow down the process, as pointed out by Kolk and Van den Buusse (2012).

With the light-on-demand system (using LED lights), both ends were met. Sensors on lampposts notice when someone is approaching, and the light becomes stronger. When the person moves further, the light dims again. Inhabitants were closely involved in the design and implementation of the system; Philips and the municipality took note of their concerns, and closely monitored the results.

A Philips sales manager that we interviewed noted that it is not always easy to deliver innovative solutions like the one described above, because in many municipalities, public procurement, is conservative, risk-averse, time consuming; and all too often, pilot projects are not being scaled up. In his view, to avoid risks, cities prefer “proven” technologies, rather than try out new solutions, even if the latter holds promises of substantial cost and energy savings. And even if a city opts for an innovative approach, technologies change fast, and solutions become outdated very soon. Often, better and cheaper technologies are available by the time of implementation, but contracts are typically inflexible, with very detailed specs, and do not allow for change. Philips would like to see more modern ways of procurement, allowing for more technological flexibility and leaving room for the creativity of the company/consortium to use the best technologies available by the time of implementation. However, many municipalities lack the knowledge and experience to engage in more modern and flexible procurement methods.

Second, there is the problem of scaling. Many municipalities are ready to engage in small pilot projects in a single street of neighborhood, but when a good solution is found, they often don’t scale it up. According to our interviewee, “every alderman seems to want his own pilot project. Municipalities should become more active to learn from each other’s experiences good practices rather than everyone having a new pilot”. Moreover, cities are being criticized for a lack of implementation power and speed. “Municipalities have high ambitions when it comes to sustainability and becoming smart, but what lacks is a concrete roadmap to get things done, and a culture of innovation. Often, progress and innovation depends on a single strong person (mayor, alderman, or pro-active civil officer) in a city”.

### **Case 2. TNT Express**

TNT is a logistics company, with express delivery as its core business. The company wants to be a leader in sustainable business. For TNT, cities/municipalities are not direct clients like in the previous example. Nevertheless, in its operations TNT faces a number of urban issues, because the vast majority of its pickups and deliveries are in metropolitan areas. A growing number of TNT’s clients (including Apple) critically watches the “sustainability performance” of TNT, urging the firm to use low-carbon and energy efficient urban distribution methods. At the same time, from a sustainability and livability perspective, city administrations put all sorts of restrictions on lorry access, and restrict shopping street deliveries to particular time slots, with major implications for express companies like TNT. A TNT manager notes that city governments tend to “solve”

environmental problems by imposing rules, regulations and restrictions, rather than engaging in smart partnerships with more potential for innovative solutions. TNT and the city have a common challenge, but it is not easy to find the match. Therefore the company considers it a big challenge to immerse itself in urban management issues relevant for its core business. In various cities, the firm set up “smart” partnerships with (urban) actors, with often contradictory interests, to develop sustainable delivery solutions that reduce emissions and save money and time. The company already achieved substantial results. In Brussels, bicycles are used instead of cars for express services. The firm teamed up with a project for youth in the city, and now employs formerly unemployed youth to drive the bicycles. In the City of London, TNT built consolidation centers at the edges of the city, thus reducing the number of inner city movements. Along the way, TNT gained substantial knowledge and experience on urban management. A manager stresses the importance of a more integrated approach towards urban innovations: “City administrations work too much from silo’s, but to achieve results, technical, legal and economic aspects need to be tackled simultaneously”. In his view, city administrations should more actively capitalize on the commitment, knowledge, and ideas of companies. One rather mundane example, relevant for TNT, is the width of cycling lanes. If cities would make these lanes a bit broader, they can be used by TNTs “express bikes”. Thus, for a sustainable city, it would make sense to involve a firm like TNT in the design process of new cycling lanes.

#### **12.4 Synthesis and conclusions**

Under influence of changing social values –a greater concern for the environment-, an ongoing trend of urbanization, and a surge of technological progress, the “city” is becoming a central concern for a growing number of large, leading tech companies. Big firms like Siemens, Philips, Cisco and IBM explicitly target cities as key markets to deliver their sustainable solutions (smart grids, decentral energy generation systems, sustainable transport solutions, lighting, to name just a few areas). They opened up dedicated profit centres, set up departments or special city programmes, engage in debates about the future of cities, and actively explore new ways to immerse themselves in urban decision making processes.

Thus, greening cities has become big business. How to interpret this tendency? From a critical perspective, one may point at the emergence of policy arena’s, in which corporations seek new ways to influence local policy making for their own benefit. To “sell” their products and services, they need to position themselves subtly in new types of network constellations (with housing corporations, local governments etc.), and align with (or pay lip service to) the green ambitions of city administrations. And in fact, in many cities (including Amsterdam and Rotterdam), corporations have obtained strategic positions in hybrid institutions (such as economic advisory boards, or “smart city” project organizations) where they have

gained substantial formal and informal influence on urban sustainability strategies.

Pilot projects are being developed everywhere, in which companies are testing new solutions in collaboration with other urban stakeholders. Pilot projects can be seen as test environments for cities and companies, where they can learn together how to make the city greener, starting on a small scale, and seeing what works and what does not. From a critical perspective again, these projects are not neutral or harmless but should be read as corporate efforts to lock cities into their technology, or at least to build an early lead with great commercial potential. A policy implication is that governments must make sure not to become locked in by giving a single company privileged treatment; If the piloted system gets implemented, it creates strong lock-in, making new tenders to be clearly biased towards the incumbents technology solution. On the other hand, companies will not engage in any pilot if any return on investment is ruled out beforehand. City governments have to walk the slippery path of promoting innovation while avoiding lock in.

From a shared value perspective, one arrives at slightly different conclusions. Here, the corporate perspective is central, and the starting point is that in the field of sustainable solutions, cities and large firms need each other to create “shared value”. Put simply, companies make a profit, selling knowledge and technologies to cities, and at the same time they contribute, through their core business, to (urban) societal goals of energy efficiency and sustainability. The question is how to “make it happen”: how can companies work with cities for the benefit of both.

For companies, the urban market is fundamentally different from consumer markets or industrial markets, and this has strategic implications. Typically, there is not a single client (a city administration is a multi-faced body), many stakeholders are involved, political and policy processes play a key role, and policy ambitions (CO<sub>2</sub> emissions, energy efficiency) enter in the equation. Technological change is fast, pilot projects abound, and new business models come and go. Companies are struggling to find their position, and indicate to have difficulties to work with city administrations in various respects. The corporate managers that we interviewed would like to see a more “integrated” form of urban management, abandoning the silo approach, in favor of more holistic concepts. From their perspective, too often, municipal departments work alongside each other, defending their policy domains rather than collaborating to attain smart solutions. New urban sustainable solutions often don’t match with a single urban department, but are transversal. Express delivery company TNT runs into this during its efforts to make urban express distribution more sustainable. Typically, it has to deal with a variety of officers from various urban departments (urban planning, transportation, environmental department), and sometimes with different administrative city districts. Our corporate interviewees typically dub these bureaucratic hurdles as a “lack of vision and leadership”. But as a matter of fact, it is interesting to see a call for

more integrated and holistic approaches, this time not coming from critical citizens or scientists, but from the corporate world.

Another corporate message to urban management is to modernize procurement practices and bring them in line with the rapid pace of technological developments. Often, municipalities are risk-averse. Rather than buying new technology, they procure what they know and understand, and are reluctant to engage in new types of deals. Also, procurement procedures takes a lot of time and are inflexible. New types of “framework” procurement are needed, allowing for more technological flexibility and evoking creative and innovative behavior from the firms. There are examples around, but many city administrations lack the knowledge and competences to procure adequately. Investing in these competences may have high social returns.

We conclude that the critical view and the “shared value” concept both shed light on the issue how to shape future collaboration platforms between city and business. The critical perspective helps to recognize clearly where corporate and social interests diverge, and provides warning against real dangers such as lock in and companies paying lip service to environmental issues while ruthlessly pursuing narrow corporate interests. The shared value perspective highlights the corporate interest and potential in contributing to social values such as sustainability, and suggests avenues to align corporate core business with social goals. Our interviews show that firms have a growing business rationale for being more green and sustainable, and that they are struggling to engage in partnerships with cities and urban stakeholders to obtain results in this respect.

What seems to lack in many cities is an appropriate “platform” where municipality and companies meet and systematically explore opportunities for shared value. Our interviewees from companies indicate the difficulty to find their way into the city bureaucracy, to understand how decisions are made. Also, they indicate that they are often seen as just another company that wants to sell a project or product, even if there are clear win-win situations for both sides. Recently, several cities have set up “smart city” organizations as triple-helix or quadruple helix platforms where sustainable urban solutions are being developed and rolled out. So far, there are no systematic analyses of these new hybrids, offering new avenues for further comparative research, for example on newly emerging business models and contracts, how large corporations are influencing decision makers in cities to get their projects started, emerging new types of lock-in, civic participation in the development and roll-out of sustainable infrastructures, etc

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## **Chapter 13: Sustainable tourism development in cities of art: the case of Venice revisited**

**Jan van der Borg**

### **13.1 Introduction**

When I asked Leo van den Berg in 1986 if he was interested in helping me developing a study on tourism in Venice, he not only immediately showed interest in the subject but he also found a way to finance the study in a creative way. He asked the board of the newly established Tinbergen Institute if they were interested in a project in the sphere of regional and urban economics. Surprisingly, they were, and so I became one of the four first AIOs of the TI and the first PhD student of Leo van den Berg.

Back in 1986, tourism research was monopolised by geographers. British geographers to be precise, forming what I have sometimes called the “selling the city” gang, very convinced that an increasing number of (British) cities that were trying to cope with a devastated economy might be needing a boost, and that the explosively growing leisure and tourism market was one of the most realistic options to generate this boost. What they did not yet acknowledged was the fact that not all cities shared the problems that Leeds, Liverpool and Manchester were experiencing, but that there were a number of cities endowed with cultural assets, cultural events and often a unique natural setting that did not need to sell their city more intensively, but, on the contrary, saw the expansion of the global tourism as a threat rather than an opportunity. Following discussions with the people from UNESCO and the Council of Europe, we called them cities of art or heritage cities.

In this context, Venice was truly an extreme case, a sort of a laboratory where the strong and complex relationship between tourism and the local economy could be studied more easily than in cases less mature. The case of Venice remains to date a perfect illustration of how tourism not only generates benefits for the local economy and therefore enhances social development but immense costs as well. Moreover, urban tourism has grown out to be a worthy line of research within the domain of tourism research.

The objective of this chapter is to present in section 2 some of the theoretical tools that have been developed in Rotterdam and Venice, also thanks to the work on urban tourism that has been done through Euricur, give an update of the Venice case with respect to the writings of Van der Borg (1991) and Russo (2002) in section 3 and present some recent developments in the management of tourism in heritage cities in the final section.

### **13.2 Sustainable Tourism in Cities of Art. Issues and Concepts**

Heritage sites and cities are each visited by millions of tourists. The continuous expansion of the tourism market in general and the more recent



boom of cultural tourism in particular have raised the awareness that historical settlements may be subject to excessive tourism pressure as much (and in some cases even more) as natural environments.

Heritage cities prove to be particularly sensitive to an excessive pressure from tourism demand. They are extremely complex: socially, economically and environmentally. The contrasts that may arise between the normal functioning of the heritage city and its tourism may threaten both tourism development and the continuity of the settlement itself. How to manage these conflicts becomes of the utmost importance, both to ensure the art cities to be conserved for humanity as well as to turn tourism into an engine of social and economic development rather than an obstacle to it.

Having Venice in mind as an emblematic example of what may happen to any heritage city when tourism pressure exceeds some intrinsic limit to development, Van der Borg has been studying the case of Venice with colleagues from Venice and Rotterdam since 1986. The limit to tourism development, the so-called carrying capacity, became one of the cornerstones of the research of the impact of tourism on a city of art.

Next to the concept of the tourist carrying capacity, sustainability has become a second fundamental issue in much of today's tourism development literature. However, very often the practical application of the concept of sustainable tourism development has been limited to non-urban or rural areas. Only recently has it been fully recognised that it can be applied as well to urban environments in general and to historical settlements of different dimensions in particular.

But what is actually meant with sustainable tourism development? Wall (1994) has stated that tourism permanently changes a local society subject to tourism flows and that sustainability is very much connected with such changes or, more precisely, with 'acceptable' change. But not only does the local society continuously undergo changes, tourism in the destination itself tends to change over time. The development process of any tourist location may be represented cyclically. This "life-cycle theory" of the tourist destinations is an elaboration of the product life-cycle used by business economists to describe the fluctuations in the sales volume of a product. Instead of the quantity of products sold, the life-cycle theory of tourist locations uses the number of visitors as the indicator.

In its most elementary formulation (see for example Butler 1980; Mill and Morrison 1985), the life-cycle theory of tourist locations tells us that, in the absence of drastic external interventions, the number of its visitors changes cyclically. Initially, the destination that stimulates tourism will experience a very slow rise in the number of visitors. In the second stage, tourism is already booming, while in the third stage this growth tends to stagnate and will eventually turn into a decline (hence, the destination enters the fourth stage).

In Van der Borg (1991), it was argued that not only the volume of the visitor flow changed over the cycle, but also its composition (i.e. the mix of tourists and excursionists). Since different types of visitors generate

different positive and negative impacts, aggregate costs and benefits tend to vary over the different stages of the cycle.

Growth in tourism demand will positively affect income and employment levels of a relevant part of the population. At the same time, increasing numbers of visitors will generate negative effects, or 'costs' borne by the physical and cultural environment, the local population and the visitors themselves. By summing and then comparing the various benefits and costs in the city of art, it is possible to determine whether tourist flows are either insufficiently voluminous or excessive. In reality, the assessment of the benefits and the costs of tourism is far from easy; there are several 'parties' involved, which perceive benefits and costs in a different manner.

The concept of sustainability and the life cycle of the tourist destination are closely related. If tourism development gets stuck in the initial stage, investments are unable to trigger the social and economic change desired. There are too few visitors, and the opportunities that tourism offers are not fully used. Tourism is costing the destination money. If growth in tourism demand is such that the quality and accessibility of attractions are compromised, the society and eventually even tourism suffer and change is no longer acceptable. Then, tourism demand has become excessive, and, instead of delivering growth, it threatens the local society's continuity.

Tourism management strategies for cities that face the problem of how to overcome the minimum limit to sustainability have been described in Law (1993) and Van den Berg, Van der Borg and Van der Meer (1995). As far as the authors of this article are aware, no attempts have been made to quantify the minimum level of sustainable tourism development.

In the case of art cities, Van der Borg (1991) suggested that it is the maximum limit to tourism development, very much related to what is more generally known as the carrying capacity, that is most relevant. Developing tourism in a sustainable manner means using the scarce resources a destination possesses in an optimal manner for tourism purposes, safeguarding not only the interests of today's tourists and tourism firms, but also those of tomorrow's tourists and tourism firms. An optimal use of these resources implies that the net impact of tourism development for the local society is being maximised over the different stages of tourism development.

Using Butler's life-cycle model, Van der Borg (1991) has clearly shown that a development process of the destination contains both sustainable and not sustainable stages. Van der Borg, Costa and Gotti (1996) have developed this approach further with the help of a Cost-Benefit Analysis. Typically, the first stage of tourism is hardly profitable: investment costs are huge and benefits meagre. Therefore, developing tourism only makes sense if one may expect that, after having invested in attractions and facilities, the number of visitors will rise sufficiently. The saturation stage tends to generate a net loss for the local society: benefits no longer compensate for negative externalities, such as congestion and pollution.

In general, negative externalities appear when a limit to development has been surpassed. As already said, the limit to tourism development is called the tourist carrying capacity, that is the maximum number of visitors a

destination can host. Notwithstanding the criticism to which the carrying capacity as a planning instrument has frequently been exposed (see for example Lindberg, Mc Cool and Stanley, 1997), it is very difficult to deny that an upper limit to tourism development actually exists; in fact, the concept has proven its value for visitor management in Venice.

It had already been shown by Glasson, Godfrey and Goodey (1995) that the carrying capacity of a tourist destination is a complex and a dynamic instrument to work with. The carrying capacity can be measured on various territorial and functional levels, including the level of the individual attractions and of the destination as a whole. In practice, the specific character of the city determines which of the levels is the most relevant. Interviewing attraction managers in Venice has taught us that, since the majority of visitors do not visit any of Venice's attractions but just wanders around in the centre, the attraction level does not seem of much relevance to Venice. And since the attitudes and behaviour of inhabitants, tourists and the tourism industry continue to change over time, the negative and positive effects generated by tourism tend to be valued differently over time. Hence, the relevance of taking explicitly into account the temporal dimension.

Moreover, the tourist carrying capacity has a multitude of dimensions. The number of visitors may be limited because the physical structure of a destination is compromised (e.g. the physical carrying capacity), because the local society loses its character (e.g. the social-anthropological carrying capacity) or because the local economy gets frustrated (e.g. the social-economic carrying capacity). Two different dimensions that have always worried Venetians and NGOs are briefly discussed below: the social-anthropological and the social-economic carrying capacity.

Residents are an important part of the tourism system around a destination. Inhabitants are an important determinant of what is known as the "feeling of hospitality" that visitors of a destination are capturing. The reaction of the inhabitants of a tourism city to tourism in general, and to tourists and excursionists in particular, determines the social impact of tourism on the local society and thus the social-anthropological carrying capacity of the destination.

Following a survey among inhabitants of Oxford (for more details on the methodology see Glasson, Godfrey and Goodey, 1995), the University of Venice organised in 1993 a survey among the inhabitants of Venice. The results of this survey were quite surprising. It showed among others that Venetians did not have the negative perception of tourism in their city as might have been expected. The respondents were nevertheless very well informed about tourism development in general. They perceived the 'massification' of tourism and the diminishing quality and especially the growing weight of excursionists in total demand. However, the decreasing quality of life in the city is not so much blamed on excessive tourism demand but also on the poor management of the local government as a whole.

The social-economic tourist carrying capacity may be defined as the total number of visitors that can be allowed to a city without hindering the other functions that the city performs. This dimension is closely linked to the

phenomenon of "crowding out", described for the first time by Prud'homme in an unpublished working paper produced for the OECD. Tourism in cities like Venice or Bruges tends to dominate (or sometimes even suffocate) the local economy and society; it replaces non-touristic activities or functions pushing them from the centre to the outskirts. The rise in the price for space in the centre, and the reduced attractiveness of a city for families and firms due to congestion and pollution, together explain the process of crowding out.

Venice remains the perfect laboratory to study the phenomena that have been developed from 1986 onwards and find their confirmation in the next section that aims at revisiting the case of Venice constructed by Van der Borg in 1991, putting into practice what Leo van den Berg has always called the 'theorizing by looking at the facts' approach.

### **13.3 Tourism in Venice from 1986 till today**

The idea that tourism development has some sort of upper limit is crucial to the idea of sustainable tourism development. The problem of determining the social-economic carrying capacity for the centre of Venice has been formalised already in Canestrelli and Costa (1991). They translated the conflict between tourism and other functions into a fuzzy linear programming model that maximises the income from tourism under capacity restrictions. These restrictions take into account, for example, the availability of accommodation, catering facilities, parking facilities, intra-urban transportation, waste disposal services and the space available in Saint Mark's Cathedral. Updating the parameters of the model, Van der Borg sustains that the historical settlement may support about 30,000 visitors in one day (or 10 million per year), of which about 15,000 are tourists (50% of tourism demand) and 15,000 are excursionists (the remaining 50% of the total number of visitors).

In 1991, the number of visitors to Venice was estimated to be 12 million persons per year. Today, the total number of visitors is supposed to be very close to 24 million persons, twice the number of 20 years ago. From a survey commissioned by the City of Venice to the University Ca'Foscari of Venice evidence emerged of a radical and counterintuitive qualitative change in the composition of the tourism flow. The weight of excursionism has decreased from 70% to approximately 60% while that of residential tourism consequently grew from 30% to 40%. In other words, the balance between tourism and excursionism improved rather than worsened. In short, a more favourable mix between tourists and excursionists has been offset by a doubling of the number of visitors.

This seems inconsistent with Butler's life cycle theory. Knowing, however, that the number of B&Bs has grown explosively from 2000 onwards, one might argue that the tourism offer of Venice has changed so radically that the preconditions for Butler's cycle have changed so much that the trajectory was structurally modified and that a new cycle has been embraced. To the introduction of B&Bs in Venice, the emergence of low cost airlines and the expansion of the implementation of ICT in tourism have changed the global and local tourism structurally.

Today's discussion around the sustainability of tourism in Venice is influenced very much by the presence of cruise tourism. Twelve cruise ships touching the port of Venice in a single weekend are no exception. These cruise ships easily carry 2,000 passengers each and therefore contribute enormously to the pressure of tourism on the historical centre. Moreover, most of the cruise tourists sleep and eat on their ships and therefore behave exactly like excursionists rather than residential tourists. From a social and economic point of view, cruise tourism is devastating the local economy. Environmental and safety issues (remembering what has happened with the Costa Concordia and imagining what might happen if this happens in the lagoon), Venetians are now demonising cruise tourism in the same way they demonised tourism from Eastern Europe just after the fall of the iron curtain.

Although the model of Costa and Canestrelli lacks an explicit temporal dimension, its results are of great interest for visitor management. With respect to a few years ago, tourism demand is now structurally conflicting with the most restrictive dimension of the carrying capacity. Nevertheless, an analysis of the distribution of demand over the year shows that demand continues to be concentrated at weekends and in the spring, autumn and particularly summer months. During ten days of the year, total demand amounts to more than 100,000 persons. Peaks of 200,000 visitors on special occasions are no exception. But what is worse, 200 days per year the number of visitors easily surpasses the carrying capacity.

Secondly, it teaches us of all that the 'optimal' visitor mix differs from the actual one. In fact, instead of a weight of 50%, tourists represent slightly less than 40% of the actual total tourism demand.

Thus, also in 2013 the lack of sustainability of tourism development in Venice is caused -on one hand- by the mix of the visitor flow, that is the weight of excursionists in total demand, and -on the other- by the seasonal fluctuations in tourism demand. In effect, the number of excursionists should be reduced, while that of tourists enhanced. At the same time, peaks in demand need to be smoothed out and the low season utilised more intensively. Furthermore, a better distribution of demand over space would be welcomed. These remain in 2013 the two priorities of the visitor management strategy of Venice and of any other heritage city and site that is confronted with excess tourism demand during peak seasons.

#### **13.4 Tourism Management in Venice.**

Having recognised the social and economic forces of tourism and its critical impacts on urban systems, it is surprising to note that, even in a tourism destination "par excellence" as Venice, tourism is still treated as a self-maintainable activity and is thus left to itself and to improvisation. The principal problem is that the cities' policy makers continue to be unable to respond properly to the problems caused by an unsustainable form of tourism because they do not appreciate the "soft" sphere of tourism issues enough. They continue to provide answers in terms of hardware: terminals, parking lots, trams and congress centres. However, they are not equipped

at all to handle the management of the multiple variables associated with tourism in a city of art.

On the other hand, the private sector continues to pursue its proper interests and possesses not enough vision to ensure that the evident limits to tourism development are respected. A good example of the consequences of this is the continuous flow of promotional material that is produced in Venice. Since the increase in the supply of beds in hotels and B&Bs has by far exceeded the growth in demand, operators insist in promoting the historical centre of Venice, stimulating however, principally due to a limited supply of hotel beds, almost exclusively excursionist demand. The lack of overall organisational capacity has a devastating effect on the development of tourism in this sensitive urban environment.

The city of Venice has with this respect become a benchmark. Since decades, it declares to be ready to implement a 'softer' and probably a more efficient way of avoiding the phenomenon of excessive demand, both from the city's and from the visitor's point of view, introducing a series of incentives that guide tourism demand. These incentives recognise the fact that the destination is an asset with a limited capacity, the use of which should be rationalised also for the sake of the visitor experience. Of course, this should be communicated in advance to the market, either directly to the potential visitors or indirectly to the travel agents and tour operators.

This type of rationalisation policies asks for an advanced booking system. Through the reservation of service packages, which could include for example meal vouchers, tickets for exhibitions and museums and discounts in souvenir shops, and visitors may be stimulated to visit Venice in specific periods. The booking of such as package could be mandatory (a sort of entrance ticket) or optional. In the last case the potential user must be convinced of the advantages the package offers him, and hence accept advanced booking. The package can be stored on a "City Currency Card", serving in all effects as a credit card, valid for the length of the visit, and with which goods and services in the city can be paid. The card can be issued in different forms to different types of visitors, in numbers that are fixed in advance. The personal credit card furthermore allows for the price discrimination according to the hour or the day that the card is used, i.e. it is the visitor's behaviour that triggers the differentiation of the price not its characteristics.

Both the city service package and the city currency cards can be seen as surrogates for the core service the tourist uses, the hotel bed. It thus helps to convince excursionists to plan their visit instead of improvising. Their reservation could be organised in the context of any telecommunication network, that permits long distance sales in real time, an immediate update of the availability, and the emitting of relevant receipts, such as the systems developed by various consortia of airlines.

In this context, the Internet has some promising characteristics that offer very interesting possibilities when it forms the core of such a reservation system. In principle, the Internet reaches the potential visitors at home before their trip, it is interactive and therefore allows for an eventual booking, it operates in real time, it is cheap, and, last but not least, it is selective.

In 2003, Venice has been studying the possibility of asking tourists to book the visits to the city in advance, through the Internet and a call centre. The first step has been the creation of a specific site dedicated to the city card with a specific booking module. The potential visitors received a voucher that allowed them to take profit of a number of interesting advantages. The subsequent introduction of the smart card version of the Venice Card named Venice Connected was a combination of the two reservation policies mentioned above, and was supposed to offer the visitor an even stronger incentive to make him book his visit to the city well in advance.

How were this Venice Card and subsequently the Venice Connected package exactly supposed to work? Visitors were invited to book their visit to Venice, and receive in exchange a city card that offered them a series of advantages and possibilities that were not accessible to visitors that do not book there visit (although these still have access to the city). The total number of cards issued would obviously be equal to the most restrictive of the different carrying capacities of the centre of Venice, which seems to be the social-economic one. Visitors spending the night within the Municipal boundaries might have received the card together with the reservation of hotel accommodation.

Already in 1991, Ermolli and Guidotti described the conditions that would have to be satisfied in order to guarantee a successful implementation of such a reservation system. They came to the conclusion that, at least from a technical point of view, the monitoring and the control of the tourist flows in real time does not create any problems. What is essential, however, is that all the actors involved in tourism development are convinced that a reservation system brings them specific benefits. The problem is one of organizational capacity rather than that of technological possibilities.

Venice has not only studying ways to improve the spread of visitors over time, but it has been working on improvements of the territorial distribution of the visitors once they are in the city. At present just a few areas of Venice are involved in tourism development. Tourism is concentrated in the area between Rialto Bridge and St. Mark's Square. Alternative routes within the city may be introduced to rationalise the use of the city and its numerous unknown cultural treasures. Alternative routes are attractions linked through a route and sustained by complementary tourism facilities. Since tourism demand concentrates around the 'musts', an alternative tourism route might persuade the visitors to visit attractions that have been less promoted and thus are less known to the public (which certainly does not mean that they are not worth a visit; on the contrary), and thus relieve the already congested attractions and areas. The alternative route may also involve the surroundings of the city. It has already been said that mature destinations do not only suffer from excess demand, but also from an unfavourable mixture of overnight and same day visitors. The route may, therefore, also constitute a strong incentive for the visitor to stay a bit longer in the city.

Not all cities are willing to spread tourism over the municipal territory. In some cases the concentration of tourism is to be preferred, in order to keep certain areas genuine. Furthermore, there is the danger that by introducing the

alternative tourism route the quality of the overall tourism product improves too much. If total demand rises consequently congestion problems after spreading might well remain the same as before. Especially if one realises that the 'musts' will be visited anyway. The tourism development strategy should address these issues in particular.

In practice, the ideas that looked promising and the management instruments that were developed over the last decade, have been gradually abandoned and the city of Venice finds itself in exactly the same situation as 20 years ago. What the city continues to lack is the political will to enforce not always popular measures and the organising capacity required to implement complex management systems. And academics can study in Venice the devastating effects of unmanaged tourism development for decades to come.

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