

University of Economics in Katowice

Volume 10

2012

*Journal of*

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# Economics & Management

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**PUBLIC SPACE DEVELOPMENT  
IN THE CONTEXT OF URBAN  
AND REGIONAL RESILIENCE**

## Introduction

The resilience concept has become popular because of increasing sense of uncertainty and insecurity and a search for formulas for adaptation and survival (Christopherson et al., 2010). Financial crisis, political disturbance, other extraordinary events and especially the international debate about possible environmental disaster caused by climate change have a strong influence on the popularization of the term (Müller, 2011)\*. However, the ability to recover from shocks caused by natural hazards is not mostly challenge that urban areas have to face. Cities and regions in the transformation countries of Central and Eastern Europe meet not sudden but long-term challenges of deindustrialization or demographic change.

In case of people a high degree of resilience can be build through proper diet, exercise, recreation, interesting work or family support, which could play role of driving forces of individual development. However, due to the different types of threats, as well as the complexity of human nature, it is difficult to propose one and only right risk reduction strategy. Just as people, cities and regions may be resilient too. And just as people cities and regions are complex system. The discussion about application of resilience to cities and regions is in the primary stage (Müller, 2011)\*\*. Therefore, we should be very careful in applying the term ‘resilience’ to everything related to change towards local and regional development (Müller, 2011). Otherwise the term ‘resilience’ remains relatively ‘fuzzy’ concept, using within policy documents as a buzzword (Dawley et al., 2010).

Examining theoretical foundation of urban and regional resilience, significant set of questions is:

- How do we understand urban and regional risk, and why an adverse regional event occurred?
- What factors affect ability of regional economies to respond to change?
- Why do some regions or cities manage to overcome short-term or long-term economic adversity to maintain high quality of life while others fail?
- Which regions have proved resilience in the past and how such resilience was achieved?

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\* In his paper B. Müller mentions the first global forum on this topic “Resilient City 2010” congress in Bonn, and “Making Cities Resilient Campaign” of the United Nation International Strategy for Disaster Reduction.

\*\* “Cambridge Journal of Regions, Economy and Society”, Vol. 3, Issue 1, March 2010 consists of set papers on “The Resilient Region”. The 2010 edition of the German Annual Spatial Research and Policy gives overview of resilience-related spatial research and practice in Germany. See: (Müller, 2011).

- What resilience may have to offer the formulation policy?
- How can regional and local institutions develop adaptive capabilities? (Christopherson et al., 2010; Pike et al., 2010; Hassink, 2010).

Firstly the paper is an attempt to explore different understandings of urban and regional resilience, secondly focus on application of the resilience debate to urban public space development.

## 1. Urban and regional resilience concept at glance

There are two types of challenges in general, that urban resilience concept can be used. For one thing cities and regions may be resilient in the face of sudden and episodic shocks, for instance natural disasters (the Asian tsunami and Hurricane Katrina in New Orleans as a best-known examples) or terrorists attacks in 9/11 New York. For another thing cities and regions tend to be more or less resilient in the face of the long-term stress, for instance deindustrialization, shrinking and aging population or urban sprawl and suburbanization.

Müller (Müller, 2011, p. 4) notes that we must distinguish between shocks and “slow burns”, which are typical for systems undergoing transformation. As he write: “While shocks may bring people together, ‘slow burns’ may increase competition for shifting resources, creating winners and losers”. In this case, the disturbance will be evaluated positively or negatively, depending on perspectives of different local or regional stakeholders. A good example on the local level is gentrification, in which beneficiaries are new middle-class property owners, while losers are poor households forced to displacement. A good example on the regional level is metropolisation, in which development concentrate on large cities, expecting the rest of the region to profit from core-periphery spillover effects but instead further rising socio-spatial disparities (Lang, 2011).

Therefore, a lot of authors define regional resilience broadly as the ability of region to recover from shock or disruption (Foster, 2007; Hill et al., 2008). The roots of these definitions can be found in the ecological studies, where it was coined terms engineering resilience and ecological resilience (Dawley et al., 2010). The *engineering resilience* focuses on the stability of a system, where resilience means resistance to disturbance and the speed of return to the pre-existing equilibrium or steady state. The *ecological resilience* differs from engineering approach, that a resilient region may not only return to its pre-existing shock single equilibrium state, but it may also move to one of a number of multiple equilibriums, perhaps performing better or worse than the pre-shock (Dawley et al., 2010).

In this case it could be measured by indicators like water quality and the rate of return of certain species (Holling, 1973; Primm, 1984; Berkes and Folke

1998). In case of natural parks or others protected environmental areas, the approach mentioned above could be appropriate. However, the engineering view is limited, only concerning with how fast or how easily a region ‘bounces back’ or recovers from a particular challenge. Cowell (Cowell, 2012, p. 212) claims that “[...] Such frameworks say nothing about the tradeoffs associated with ‘bouncing back’ or adjusting to a new equilibrium. Nor do they say nothing about how regional actors might prepare themselves to deal with future problems or might have learn from mistakes they have made in response to given challenge”.

From economic point of view the most applicable perspective of resilience is to think about individual region or city as a complex adaptive system which can never be in equilibrium (Cowell, 2012; Dawley et al., 2010). The above-mentioned assumption underlies the evolutionary approach, in which “[...] economic evolution depends on the actions of individual economic agents, who can learn, innovate and adjust their behaviour” (Simmie, Martin, 2010, p. 30). In such system resilience is a “[...] dynamic attribute associated with a process of continual development” (Pendall et al., 2010, p. 6).

Evolutionary approach explanation of different kind of resilience is based on notion: adaptation and adaptability. *Adaptation* reflects an inherent tendency of cities and regions to improve their situation along the path that has been successful in the past, while *adaptability* means decisions to leave a current growth path in favour of a new related or alternative trajectory (Dawley et al., 2010).

Most authors mention the path dependency, variety and adaptive cycle as the research perspectives of urban and regional resilience (Simmie, Martin, 2010; Dawley et al., 2010). In *path dependency* concept regional economy is resilient if it is able to maintain its “locked-in” development path even when disturbed by an external shock (Simmie, Martin, 2010). The *variety* of sectors (diversified economies) leads to more resilient cities and regions because of dissipating negative effects, allows for regional spill-over’s of knowledge (Dawley et al., 2010). *Adaptive cycle* concept consists of the four phases: *exploitation* (time of growth), *conservation* (time of stability), *release* (time of “creative destruction”), *reorganization* (time of innovation). Any given region will experience varying levels of resilience, depending on where it is within the four-phase cycle: *exploitation* (high, but decreasing resilience), *conservation* (low resilience), *release* (low, but increasing resilience), *reorganization* (high resilience) – (Simmie, Martin, 2010; Dawley et al., 2010; Cowell 2012).

Table 1

A comparison of equilibrium approach and evolutionary approach in urban and regional resilience

Approach	Equilibrium approach	Evolutionary approach
Disciplinary context	environmental studies	<ul style="list-style-type: none"> <li>evolutionary economics,</li> <li>evolutionary economic geography</li> </ul>
Time perception	Time is measured in moments (pre-shock, shock, post-shock)	Regions are in a constant process of transition
Key words	<ul style="list-style-type: none"> <li>equilibrium growth path</li> <li>multiple equilibrium (alternative) growth path</li> </ul>	<ul style="list-style-type: none"> <li>adaptation</li> <li>adaptability</li> </ul>
Concept framework	<ul style="list-style-type: none"> <li>ecological resilience</li> <li>engineering resilience</li> </ul>	<ul style="list-style-type: none"> <li>path dependency</li> <li>variety</li> <li>adaptive cycle</li> </ul>
Example	Resilience of New Orleans after disaster from hurricane can be measured by an equilibrium-based rebound in tourist expenditure or employment	Analysis of the casual path that decreased the potential of New Orleans resilience, answering the question: "How did the projects undertaken by the US Army Corps of Engineers to reshape the port to make international shipping easier and more profitable eliminate the wetlands that provide the city with natural protection from potential hurricane damage?"

Source: Based on (Christopherson et al., 2010; Dawley et al., 2010).

Müller (Müller, 2011) note some weaknesses\* of the attempts to extend the resilience concept on cities and regions. The first is due to the complex and open character of urban and regional system, that means resilience has to incorporate many socio-economic aspects, such as human perception, interaction or governance. A second challenge in present theoretical concept is related to the weak links between social and economic dynamics, governance issue, environmental aspects, land-use patterns and the built environment, which all should be integrated. Other challenges are:

- need to compare the resilience concept to other existing theories or urban and regional development, such as innovative city, creative city, learning region;
- greater emphasis on the spatial dimension of resilience, for instance research on different level of resilience between core and periphery or different residential areas.

\* Maybe more appropriate word would be "challenge".

## 2. How urban public space could increase resilience and decrease vulnerability? Theoretical and research framework

Just as cities are good example of complex adaptive system, so urban public spaces are example of dynamic, connected and open (micro-scale) system within urban areas. Debates about urban public space are multi-dimensional and multi-objective, focusing on design, environmental, social, economic and political aspects.

There are many different ways to define public space. Carmona (Carmona et al., 2008, pp. 4-5) offers broad and narrow definition. In the first case “[...] public space relates to all parts of the built and natural environment, public and private, internal and external, urban and rural, where the public have free, although not necessarily unrestricted access. It encompasses: all the streets, squares and other rights of way, whether predominantly in residential, commercial or community/civic uses; the open space and parks; the open countryside; the public/private spaces both internal and external where public access is welcomed – if controlled – such as private shopping centres or rail and bus stations; and the interiors of key public and civic buildings such as libraries, churches or, or town halls”. Because of private property rights and internal structures of some places above-mentioned, free access can be restricted. For this reason, narrower definition would exclude private and internal space, such as shopping malls, restaurants or libraries.

From economics perspectives most of urban public spaces are *impure public goods*, thus they are non-rivalrous and non-excludable until reaching congestion/crowded externalities. Urban public spaces are usually *local public goods*, that means they are more and more excludable when longer distance between public space and consumers. In summary, the level of consumption of urban public spaces, depend on the level of consumption of externalities generated by public spaces (Markowski, 2001).

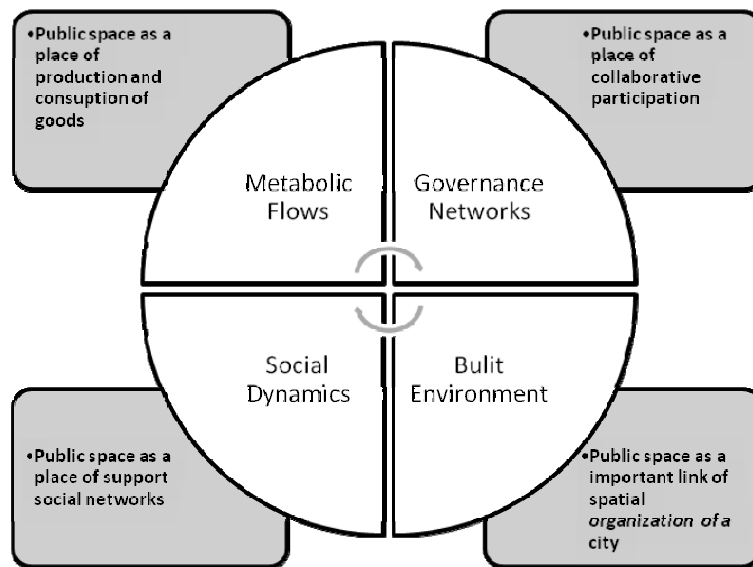
Searching linkages between urban public spaces and urban resilience, we have to take into account all types of public space, regardless of location and rank. Depending on disturbance, both best-known, iconic urban public space and system of neighbourhood backyards can play important role in reaction and adaptation process.

In order to answer the question of how public spaces influence urban resilience, I tried to adapt “four priorities” approach proposed by The Resilience Alliance\*. In this concept the four themes recognized as a important elements for the resilience of urban system are:

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\* The Resilience Alliance is a multidisciplinary international research consortium (CSIRO Australia, Arizona State University, Stockholm University) which aims to provide novel solutions to managing resilience and coping with change, uncertainty in complex social-ecological system.

- *metabolic flow* as the critical interconnections and interdependencies along chain of production, supply and consumption;
- *social dynamics* as a demographic changes, human capital and social stratification and inequality;
- *governance network* as a institutional structures and mechanisms for redistributing services;
- *built environment* as a ecosystem services in urban landscape (Resilience Alliance, 2007).



**Figure 1.** The role of urban public spaces in multi-level resilience of urban system  
Source: Based on (Resilience Alliance, 2007).

Taking into account multi-dimensional character of urban public spaces in cities development, they play important role in the specific resilience of four components of the urban system (Figure 1).

#### **Public space and metabolic flows**

If we assume that interconnections and interdependencies along chain of production, supply and consumption have influence on urban resilience, thus condition urban public space can play important role in this process. Well-design, green, safely, and accessible public space could support:

- minimize the use of energy (for transportation) and maximize use of local labour, by implementing *new urbanism* principles, such as walkability, connectivity, mixed-uses and diversity, increased density, green transport and so on<sup>\*</sup>,
- reducing both risks of natural distress, such as flood, fires, and disadvantages caused by people activities, such as industrial noise, air pollution,
- strengthening linkages between producers, consumers and a city, taking advantages from urban public spaces, they are more conscious of risk, more responsible for a place.

#### **Public space and social dynamics**

If we assume that both communities with dense social networks have greater capacity for adapting to change and social stratification lead to greater vulnerability, this means that condition urban public space may promote one of the above-mentioned situations. Gehl (1987) in his influential “Life Between Buildings” describes essential elements that contribute to people’s enjoyment of space in the public realm. He emphasizes that life between buildings is a dimension where social interaction and perception, urban recreation, and sensory experience of city life take place. He distinguishes between necessary, optional and social activities in public spaces. While necessary activities regardless of the quality of the physical environment (for instance waiting for buses), optional activities depend to quality and significant degree on what the place have to offer (for instance walking, jogging, window-shopping or eating lunch outside). Social activities occur spontaneously when people meet (for instance children’s play, conversation). The better a place, the more optional and social activities occur and stronger links are created between local society. Well-design, functional, accessible and friendly public space could support:

- civic engagement and social inclusion,
- mutual trust between different groups of society,
- reducing social stratification and willingness to live in gated-communities,
- activities of institutions as place and scenery of cultural, educational, political and other social events.

During shocks urban public spaces play a crucial role, becoming the main places where people can help each other and organize themselves to face the treat. However, we must also take into account that threats such as terrorist attacks, violence or riots usually take place in urban public spaces.

#### **Public space and governance network**

If we assume that governance as a collaborative participatory approach have greater capacity for adapting to change and cities with ‘good governance’

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<sup>\*</sup> <http://www.newurbanism.org/newurbanism/principles.html>

have mechanism for redistributing services and benefits to their population, thus urban public space co-management (governance) may increase level of urban resilience. The Resilience Alliance gives example based on Pirez (2002) who describes Buenos Aires as a private metropolitan city. In this case planning based on large private developments, including gated-communities has led to spatial fragmentation, social inequality, lost of public interests. Therefore, existence of urban public space is a prerequisite of effective land use planning and local governance. Urban public spaces are complex adaptive system within city, so – in urban resilience context – they are perfect to:

- implement more organic, adaptable and flexibly urban management,
- test innovative tools of land use planning and local governance, more focusing on learning-by doing,
- test better solutions in the provision public goods.

During shock urban public spaces play a crucial role, becoming a place of provision of some goods, which are usually private but disturbance forced to deliver them as a public. For instance during the long drought period people will use public swimming pools resign from private pools or distribute swimming services within still operating private pools as a commons.

Cities in the process of restructuring are characterized by vacancy. As Fuhrich and Goderbauer (Fuhrich, Goderbauer, 2011, p. 53) suggest: “In order to keep options for using existing areas or buildings open for the municipality, thinking strategically in terms of interim solution, permitting interim uses, and planning for them as far as possible can be a reasonable approach”. Land formerly occupied by residential, industrial or military buildings and infrastructure, now with open access as a public space can be scenery of “temporary uses projects” from the fields of arts, culture, sport, recreation. Recessions spurs creative temporary uses of urban lots, which often grow out citizen’s involvement and build governance networks.

#### **Public space and built environment**

If we assume that condition of built environment such as urban infrastructure has a significant influence on location decisions of people, firms and institutions, thus urban public space development rise adaptability of the system. Taking into account urban public space resilience, there are two good examples of *path dependency theory*.

In the first case we assume that city is resilient if it is able to maintain “lock-in” in particular trajectory of economic development. Brueckner, Thisse and Zenou (Brueckner, Thisse and Zenou, 1999) in paper titled *Why is Central Paris Rich and Downtown Detroit Poor?* An amenity-based theory try to ans-

wer this questions focusing on differences in urban amenities offered in this two cities. Central Paris is permanently attractive because of buildings, parks and streets, that are aesthetically pleasing to residents and tourists. Central Paris also offers wide range of excellent and famous restaurants, theaters, museums, that are difficult to copy or transfer to the suburbs. Because of above-mentioned public space amenities central Paris maintain “lock-in”. By contrast, downtown Detroit lacks the rich history, the infrastructure does not offer appreciable aesthetic benefits. All necessary amenities can be offer in suburbs, that caused downtown declining.

In the second case we assume that city is resilient if it is able to “de-locking” and find alternative trajectory of economic development. One of most influential and most cited example is a city of Bilbao and so-called “the Guggenheim effect”. This post-industrial city redefined itself as a cultural centre. Transformation of urban public spaces by “flagship” projects was one of the main factor, that help to jump into new trajectory of city development.

Resilience Alliance (2007) in his research focus on effects of urban public spaces planning on public health and society resilience. More availably side-walks and paths than roads, shifts people from driving to walking. Therefore well-organized, pedestrian-oriented public space contributes to physical activity, decreasing so-called life-style disease, such as obesity, diabetes or cardiovascular.

## Conclusions

Linking urban public space development with resilience concept should increase awareness of influence that urban public space have on adaptation and adaptability of city to both shocks and long-term disturbances. Based on rich literature studies, Carmona (Carmona et al., 2008) lists benefits that public space is able to deliver across economic, social and environmental spheres:

- economically:
  - positive impact on property prices (neighborhood externalities), and increasing of property taxes,
  - boosting commercial trading,
  - raising levels of investments,
- for human health:
  - encouraging activity with associated health benefits,
  - reduces mortality by avoiding car-dominated environments,
- socially:
  - delivers learning benefits for children,

- can help to reduce anti-social behaviour,
  - promotes neighborliness and social cohesion,
  - provide a venue for social interchange,
  - promotes governance networks,
- environmentally:
- encourage the use of sustainable modes of transport,
  - improve air quality, reduces heat islands effects, pollution and water run-off,
  - creates opportunities for urban wildlife and flourish,
  - supports growing recycling networks and industrial metabolism.

Therefore, both condition of urban public space and governance strategy are important contributor to the vitality and viability of urban system, both well-being of local population and dynamics of economic development.

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