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## RESILIENCE AND VULNERABILITY IN OSTRAVA AND KARVINÁ FROM THE SOCIO-CULTURAL PERSPECTIVE

### REZYLIENCJA I WRAŻLIWOŚĆ W OSTRAVIE ORAZ KARVINIE – PERSPEKTYWA SPOŁECZNO-KULTUROWA

**ABSTRACT:** This article deals with the evaluation of resilience and vulnerability in Ostrava and Karviná between 2000 and 2010 from the socio-cultural perspective. These cities embody typical representatives of post-industrial urban entities in the Czech Republic. The socio-cultural component of life is indispensable for the explanation of other processes in the examined territories. Ostrava's higher resilience can be accounted for by its more favorable position within the settlement system of the whole region.

**KEW WORDS:** resilience, vulnerability, Ostrava, Karvina, socio-cultural perspective of resilience

## 1. Introduction

Territories of various types and scales currently stay vis-à-vis myriads of challenges of both external and internal nature. Poverty, migration, pollution, decay, natural disasters or economic failures can be ranked among them. Major threats and disasters that occurred in the last few years include, among others, Asian tsunami, Hurricane Katrina in New Orleans or terrorist attacks in New York, Paris, London, Madrid, Brussels and elsewhere. Put succinctly, the above-mentioned events/shocks and transitions are of strongly differentiated origin and nature. Subsequently, the notion of resilience should be treated as an ability of an entity or a system to recover from disturbance and disruption of some kind (for different views see for instance Simmie and Martin, 2010; Adger, 2000; Pike, Dawley and Tomaney, 2010; Wink, 2012; Vale, Campanella, 2005; Kaplan, 1999; Pendall, Foster and Cowel, 2007 or Drobnik, 2012).

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The depicted, events stood behind the birth of ideas that gave rise to concepts, which are currently known as territorial resilience and territorial adaptability. The latter refers largely to long-term trajectories. On the contrary, territorial resilience can be in a way perceived as a short-term subset of territorial adaptability. Contrary to that, vulnerability is associated with the opposite – largely negative – processes and phenomena.

The main objective of this article consists in the assessment of resilience and vulnerability in Ostrava and Karviná between 2000 and 2010 from the socio-cultural perspective. The paper is largely based on the chapter within Drobniak et al (2014). Both Ostrava and Karviná, i.e., cities located in the Czech Republic, can be treated as typical representatives of post-industrial cities in post-transition countries, for which specific formal and informal institutions are concomitant (for more information see Sucháček, Wink and Drobniak, 2012).

Albeit Ostrava and Karviná share industrial DNA and geographical proximity, there are some differences that should be presented. These cities are located in Moravian-Silesian region in northeast part of the Czech Republic, which shares its border with Poland and Slovakia. This region covers an area of 5 427 sq. km. With the population of approximately 1.2 million it is one of the most populated regions in the Czech Republic. Territorial structures of Moravian-Silesian region are of complementary character and include urban industrial, mountainous as well as agricultural areas. That is why there exists quite strong commuting due to the work, culture but also recreation, which supports interconnectedness of the whole region (Sucháček, 2005).

The socio-economic character of the territory is influenced by the attractiveness of Ostrava, which is currently the socio-economic and administrative heart of the whole region with the population of roughly 300 000 inhabitants. Karviná, with the population of approximately 60 000 inhabitants is to some extent overshadowed by Ostrava, which is the regional metropolis. The position of both examined cities is influenced also by the relatively mixed sector structure of Ostrava and the more mono-structural character of Karviná's economy, which partly influences the resilience trajectories of both cities.

Both of these old industrial cities have witnessed a socio-economic decline as a consequence of rather painful transformation, but developments have not been so similar. The difference between both cities in the sphere of employment is determined primarily by labour opportunities. While Karviná suffers from economic monoculture, Ostrava can offer a bit higher job variety and more skilled labour opportunities. Not surprisingly, Ostrava is the main centre of commuting for Karviná's inhabitants. Nonetheless, there have been long-term mismatch between labour supply a demand in the context of earlier sector orientation and subsequent restructuring processes in both cities. The situation is qualitatively better in Ostrava, which was palpable mainly in the period of economic growth (it primarily concerns the time between 2006 and 2008).

## 2. Methodical Continuities

In this phase it is useful to determine what the factors affecting resilience in Ostrava and Karviná are and similarly, which factors deepen the vulnerability of these cities. The whole methodical continuities are elaborated in Drobniak et al (2014).

First, we analysed factors enhancing urban resilience or deepening urban vulnerability within the socio-cultural component of life. Socio-cultural aspects of life are of utmost importance as population present in the given territory along with its qualities and characteristics always embody a *spiritus agens* for other structures, processes and phenomena within researched space.

Table 1  
Factors enhancing urban resilience in the socio-cultural dimension

Resilience general attributes	Factors of resilience for socio-cultural domain
Adaptability	<ul style="list-style-type: none"> <li>– creativity of inhabitants (ability to generate novelty)</li> <li>– learning orientation (individual and social learning, along with experience and long life learning)</li> <li>– good health conditions</li> </ul>
Connectivity	<ul style="list-style-type: none"> <li>– building and exploring of social capital (social networking – great stock of positive social capital, high quality of social interactions, quick non-formal communication channels, trust)</li> <li>– good internal and external communication abilities (like content, language, media, communication patterns)</li> </ul>
Diversity	<ul style="list-style-type: none"> <li>– differences in population (groups distinguishing one from another)</li> <li>– social and cultural diversity (diversity of values, attitudes, behaviour patterns for reorganisation)</li> </ul>
Efficiency	<ul style="list-style-type: none"> <li>– skilled and flexible labour forces (qualified and responsive to change on the labour demand)</li> <li>– good livelihood (rewarding earnings on labour market)</li> </ul>
Redundancy	<ul style="list-style-type: none"> <li>– surplus of ideas, proposals, projects, events (melting pot of ideas)</li> </ul>
Interdependency	<ul style="list-style-type: none"> <li>– high reciprocity (mutual or cooperative interchange in actions)</li> </ul>

Source: Drobniak et al (2014)

Table 2  
Factors deepening urban vulnerability in the socio-cultural structures

Vulnerability general attributes	Factors of vulnerability for socio-cultural structures
Inadaptability	<ul style="list-style-type: none"> <li>– excessive reality and substance (unreasonable focus on single problems without venturesome approach)</li> <li>– learning ignorance (weak involvement in individual and social learning)</li> <li>– poor health conditions (high morbidity)</li> </ul>

Table 2 contd.

Vulnerability general attributes	Factors of vulnerability for socio-cultural structures
Fragmentation	<ul style="list-style-type: none"> <li>– negative social capital and social fragmentation (lack of community cohesion, and disproportional access to goods, exclusion)</li> <li>– scarcity of internal and external communication abilities (lack of communication patterns)</li> </ul>
Over-specialisation	<ul style="list-style-type: none"> <li>– homogenous community ('uniform' community)</li> <li>– community uninterested in other cultural patterns (closed to socio-cultural influences)</li> </ul>
Inefficiency	<ul style="list-style-type: none"> <li>– low skilled and inflexible labour forces (low qualified labour with demanding attitudes)</li> <li>– poor livelihood (unsatisfactory earnings)</li> </ul>
Insufficiency	<ul style="list-style-type: none"> <li>– resistant attitudes to new ideas, proposals, projects, events (aversion to new ideas, avoiding new solutions)</li> </ul>
Discordance	<ul style="list-style-type: none"> <li>– disagreement and permanent conflict (lack of compromise to sharing benefits of mutual activities)</li> </ul>

Source: Drobniak et al (2014)

It is worth noticing that in spite of different domains of life, general resilience attributes were always as follows: adaptability, connectivity, diversity, efficiency, redundancy and interdependency.

The same concerns general attributes of vulnerability, which were following: inadaptability, fragmentation, over-specialisation, inefficiency, insufficiency and discordance. Generally speaking, these attributes represent two sides of the same coin.

Table 3

Indexes for factors strengthening urban resilience in the socio-cultural structures

Factors of resilience for socio-cultural structures	Index
<ul style="list-style-type: none"> <li>– creativity of inhabitants</li> <li>– learning orientation</li> <li>– good health conditions</li> </ul>	– number of doctors per 10 000 inhabitants
<ul style="list-style-type: none"> <li>– building and exploring of a social capital</li> <li>– good internal and external communication abilities</li> </ul>	– number of hotels
<ul style="list-style-type: none"> <li>– differences in population</li> <li>– social and cultural diversity</li> </ul>	
<ul style="list-style-type: none"> <li>– skilled and flexible labour forces</li> <li>– good livelihood</li> </ul>	<ul style="list-style-type: none"> <li>– number of inhabitants</li> <li>– number of building permits</li> </ul>
<ul style="list-style-type: none"> <li>– high ability to generate surplus of ideas, proposals, projects, events</li> </ul>	
<ul style="list-style-type: none"> <li>– high reciprocity (mutual or cooperative interchange in actions)</li> </ul>	

Source: Drobniak et al (2014)

Table 4

Indexes for factors deepening urban vulnerability in the socio-cultural structures

Factors of vulnerability for socio-cultural structures	Index
– excessive reality and substance – learning ignorance – poor health conditions	– aging index
– negative social capital and social fragmentation – scarcity of internal and external communication abilities	– number of criminal offences per 1000 inhabitants
– homogenous community – community uninterested in other cultural patterns	
– low skilled and inflexible labour forces – poor livelihood	– expenditures devoted to social issues – amount of people receiving unemployment benefits
– resistant attitudes to new ideas, proposals, projects, events	
– disagreement and permanent conflict	

Source: Drobniak et al (2014)

The next stage of this research is devoted to the quest for appropriate indices expressing characteristics of the researched domain in a satisfactory manner. It should be mentioned that there are severe limitations in Czech territorial statistics, which pretty much limits also the empirical verification of the proposed method. Nonetheless, several proper indices were finally found.

Values of individual resilience indices in the socio-cultural field start in 2000, when the value was 100. The same applies to the vulnerability indices within the examined sphere. Subsequently we were able to monitor the dynamics, i.e., either a rise or a decline in individual indices (see also Drobniak et al, 2014).

Further on, the average indices of urban resilience and vulnerability are framed by the system of coordinates. While the x-axis corresponds to the average value of the resilience index, the y-axis embodies the average value of the vulnerability index. In that way, we get the map of urban resilience (see also Figure 1).

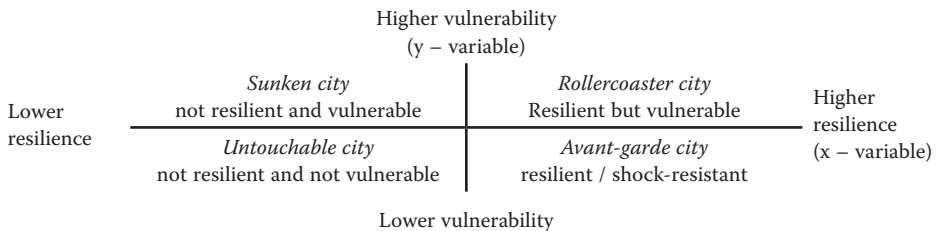


Figure 1. Map of urban resilience

Source: Drobniak et al (2014)

We get the synthetic view of urban resilience and basically four variants are possible:

- Avant-garde city, which is characterised by a high level of resilience (shock-resistant) and a low level of vulnerability.
- Rollercoaster city that is described by a high level of resilience, but also by a high level of vulnerability.
- Untouchable city, which is defined by a low level of resilience, and also by a low level of vulnerability like, for example, a city with relatively isolated economy.
- ‘Sunken’ city that depicts a city with a low level of resilience and a high level of vulnerability.

### 3. Dynamics of Ostrava’s and Karviná’s structures in the socio-cultural field

The socio-cultural component of life represents its important domain. Resilience indicators were as follows: number of inhabitants, number of hotels, number of building permits and number of doctors per 10 000 inhabitants. As for vulnerability indicators, the following turned out to be the most pertinent ones: number of criminal offences per 1 000 inhabitants, expenditures devoted to social issues, aging index and the number of people receiving unemployment benefits.

#### 3.1. Resilience indicators

The development of the number of inhabitants constitutes a rather synthetic indicator of territorial development. As it can be seen, in terms of dynamics, Ostrava is less beset than Karviná by the outflow of people. Moreover, in the case of Ostrava, many people move just beyond the city’s border thus contributing to suburbanization processes. It should be mentioned, however, that both examined cities can be classed under the so-called shrinking post-industrial cities (see also Figure 2).

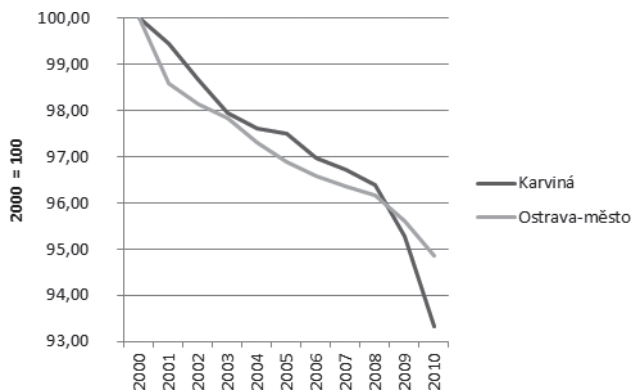


Figure 2. Number of inhabitants

As for the number of hotels, the distinction is clear. While Ostrava serves as a regional business hub, which finds ample representation in the number of hotels, Karviná underwent a decline in this important sphere. Business is less present in Karviná than Ostrava, which can serve as quite a plausible explanation of the above tendencies (see also Figure 3).

Similarly to the number of completed apartments, the number of building permits shows the expectation related to future developments. While in the case of Karviná the volatility in the dynamics of this index can be contemplated, Ostrava enjoyed a steady growth in recent years (see Figure 4). The increasing number of building permits after 2007 has been determined by postponed investments from previous years.

Number of doctors per 10 000 inhabitants is the next important resilience index and confirms Ostrava's dominance in the socio-cultural sphere, which is related to its relatively higher resilience than that of Karviná (see Figure 5). As a large city, Ostrava is attractive to medical specialists of various kinds. However, one cannot omit the unfavourable state of environment plaguing nearly the whole Moravian-Silesian region.

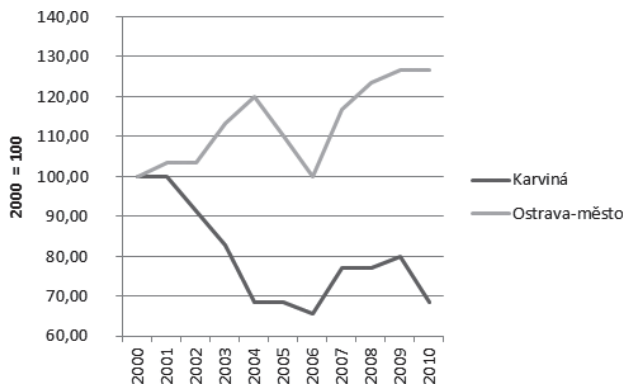


Figure 3. Number of hotels

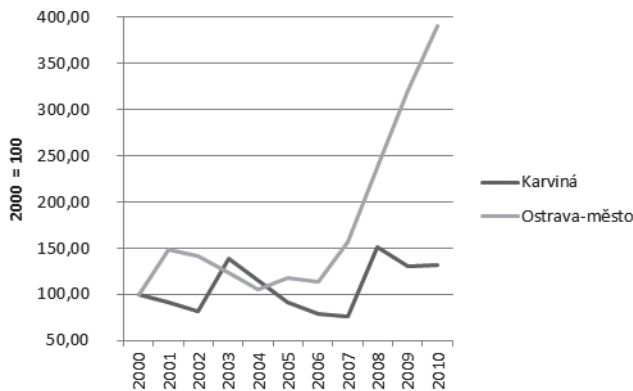


Figure 4. Number of building permits

### 3.2. Vulnerability indicators

Vulnerability indicators complete the picture of urban dynamics in Ostrava and Karviná. These indicators present the less favourable component of life in both examined cities. The development of the number of criminal offences per 1 000 inhabitants can be accounted for by the fact that Ostrava is a much larger city than Karviná, which subsequently attracts various kinds of people and raises the number of situations involving criminal acting (see also Figure 6). One cannot omit the specific situation of post-industrial cities in the social sphere.

As to the expenditures devoted to social issues, it is one of the typical vulnerability indicators. While until 2006 the index had basically had the same pattern for both cities, after 2006, when Ostrava attracted several new investments, Karviná started to perform much worse (see Figure 7).

The aging index brings further interesting information about both analysed cities. Ostrava performs better in this respect, which coincides with its slightly and relatively better socioeconomic prospects (see Figure 8).

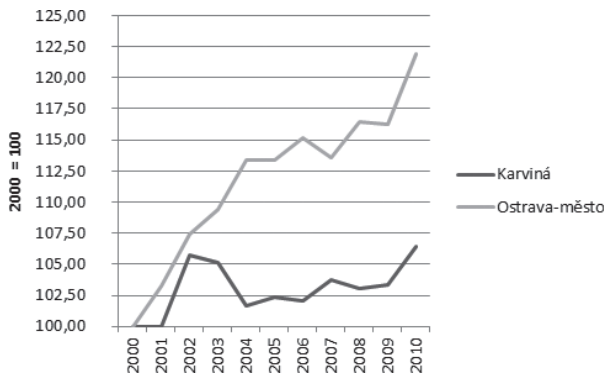


Figure 5. Number of doctors per 10 000 inhabitants

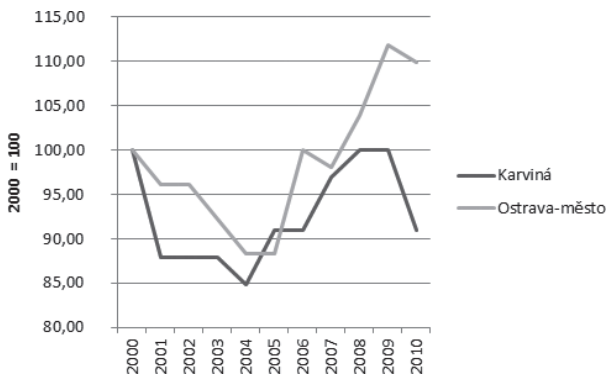


Figure 6. Number of criminal offences per 1000 inhabitants



As for the number of people receiving unemployment benefits, the vulnerability index lowers Ostrava's position but the difference between both cities is not so big (see also Figure 9).

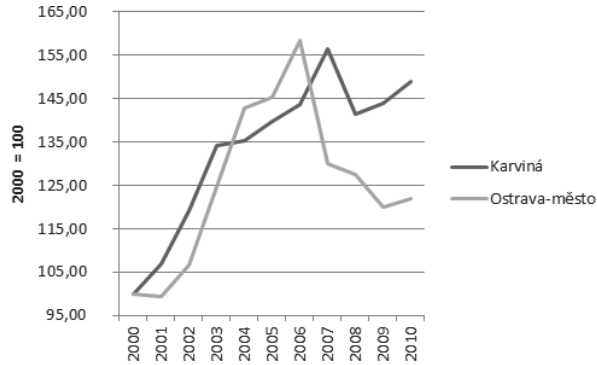


Figure 7. Expenditures devoted to social issues

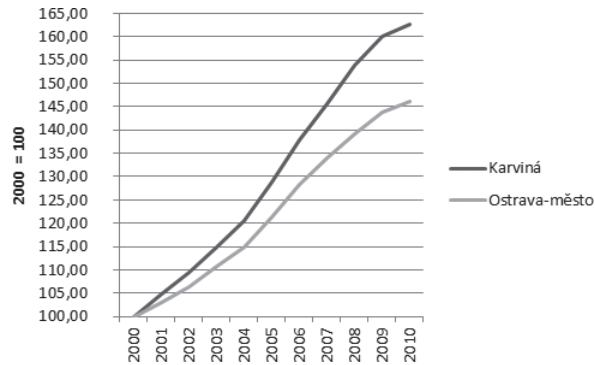


Figure 8. Aging index

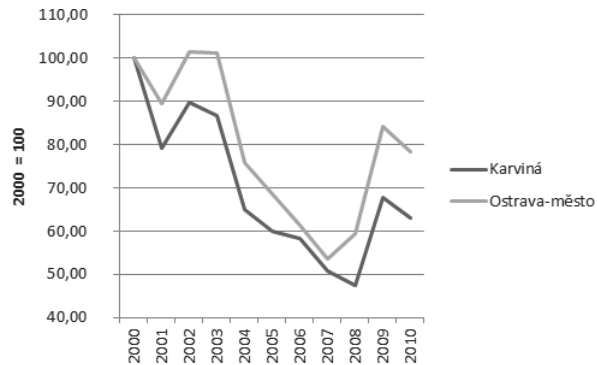


Figure 9. Number of people receiving unemployment benefits

#### 4. Assessment of Ostrava's and Karviná's socio-cultural dimension

The socio-cultural sphere of life in both cities provides us with intriguing material as we assess the nature of inhabitants in both of them. And it needs to be remembered that people should always be perceived as the basis for the creation of other territorial structures and activities in space in general.

The resilience indexes show the higher dynamics of Ostrava again. There are no doubts there exist many problems in Ostrava and the city undergoes certain shrinkage, nevertheless from the relative point of view and in comparison with neighbouring Karviná, the city looks relatively well from the perspective of the socio-cultural resilience. In spite of the distinctive brain drain, Ostrava still serves as the capital of the whole Moravian-Silesian region, which finds its projection also in terms of human resources.

Table 5

Values of resilience indexes in the socio-cultural structure for Ostrava  
along with the value of average resilience index

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Building permissions										
100	149	141	124	105	117	114	156	237	320	390
Number of doctors per 10 000 inhabitants										
100	103	107	109	113	113	115	114	116	116	122
Number of hotels										
100	103	137	113	120	110	100	117	123	127	127
Number of inhabitants										
100	99	98	98	97	97	97	96	96	96	95
Average resilience index										
100	113	121	111	109	109	106	121	143	165	183

Table 6

Values of resilience indexes in the socio-cultural structure for Karviná  
along with the value of average resilience index

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Building permissions										
100	92	81	139	114	92	79	76	152	131	132
Number of doctors per 10 000 inhabitants										
100	100	106	105	102	102	102	104	103	103	106
Number of hotels										
100	100	91	83	69	69	66	77	77	80	69

Table 6 contd.

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of inhabitants										
100	99	99	98	98	97	97	97	96	95	93
Average resilience index										
100	98	94	106	96	90	86	88	107	102	100

Both Ostrava and Karviná turned out vulnerable at basically the same degree. This shows a remarkably similar vulnerability pattern with already depicted economic-technological structures. Karviná shows better results as for the criminality, however performs worse in the aging index or social issues expenditures. As a result of that, average vulnerability indexes have very similar values.

Table 7

Values of vulnerability indexes in the socio-cultural structure for Ostrava along with the value of average vulnerability index

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of criminal offences per 1000 inhabitants										
100	96	96	92	88	88	100	98	104	112	110
Expenditures devoted to social issues										
100	99	107	125	143	145	158	130	127	120	122
Aging index										
100	103	106	111	115	121	128	134	139	144	146
Number of people receiving unemployment benefits										
100	89	101	101	76	68	61	53	59	84	78
Average vulnerability index										
100	97	103	107	105	106	112	104	107	115	114

Table 8

Values of vulnerability indexes in the socio-cultural structure for Karviná along with the value of average vulnerability index

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of criminal offences per 1000 inhabitants										
100	88	88	88	85	91	91	97	100	100	91
Expenditures devoted to social issues										
100	107	119	134	135	140	143	156	141	144	149
Aging index										
100	105	109	115	121	129	138	146	154	160	163

Table 8 contd.

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of people receiving unemployment benefits										
100	79	90	87	65	60	58	51	47	68	63
Average vulnerability index										
100	95	102	106	101	105	108	112	111	118	116

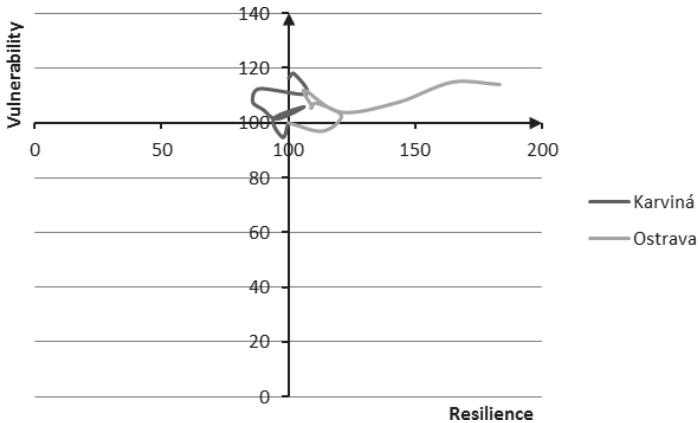


Figure 10. Synthetic picture for the socio-cultural dimension in Ostrava and Karviná

This part of the analysis is strongly relevant as it facilitates detection of internal nature of the population in Ostrava and Karviná. All other structures, processes and activities happening in these cities can be treated as external manifestations of internal attributes of Ostrava's and Karviná's inhabitants. In the case of Karviná, the socio-cultural trajectory is rather indistinct as the city belonged to three quadrants with the exception of an avant-garde city. In other words, Karviná has not been resilient and at the same time shock resistant during the whole analysed time. Ostrava proved to be similarly indistinct at the beginning of the investigated period, but in the recent year the city could be satisfactorily classed under rollercoasters, i.e., cities, which are resilient but at the same time also vulnerable. It is worth noticing that Ostrava's resilience is more intense than that of Karviná.

## Conclusions

The article tackled the issue of the socio-cultural perspective of resilience and vulnerability in Ostrava and Karviná. These increasingly popular notions proved to be useful for the assessment of recent socio-cultural processes and developments in both researched post-industrial cities located in the Czech Republic. It can be stated that Ostrava's resilience was generally higher than that of Karviná. This can be attributed

to numerous, often mutually interconnected factors, but from the synthetic point of view, Ostrava's position of the regional metropolis turned out to be decisive. However, one should not forget that the characters of both examined cities do not differ so much from each other and the characteristics of the population in both cities bear also quite a high resemblance in several aspects. Thus, specific socio-cultural paths of resilience and vulnerability in both cities are determined by the geographical proximity, on the one hand, and different urban socio-cultural fabric, on the other. Different positions of both cities within the settlement system of the whole region can be treated as an underlying factor of resilience and vulnerability in Ostrava and Karviná.

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## REZYLIENCJA I WRAŻLIWOŚĆ W OSTRAVIE ORAZ KARVINIE – PERSPEKTYWA SPOŁECZNO-KULTUROWA

ABSTRAKT: Artykuł dotyczy ewaluacji rezyliencji i wrażliwości Ostrawy oraz Karwiny w latach 2000–2010 analizowanej z perspektywy społeczno-kulturowej. Tego rodzaju miasta reprezentują typowe jednostki poprzemysłowe w Republice Czeskiej. Komponent społeczno-kulturowy jest nieodzowny do wyjaśnienia innych procesów w ramach badanych terytoriów. Wysoka rezyliencja Ostrawy może być tłumaczona przez jej bardziej korzystną pozycję w systemie osadniczym całego regionu.

SŁOWA KLUCZOWE: rezyliencja, wrażliwość, Ostrava, Karwina, społeczno-kulturowa perspektywa rezyliencji