The variety of industrial towns in Slovenia: a typology of their economic performance

David Bole[1, CDFMR], Jani Kozina[2,CDFMR], Jernej Tiran[3,CDFMR]

Research Centre of the Slovenian Academy of Sciences and Arts, Anton Melik Geographical Institute, Novi trg 2, 1000 Ljubljana, Slovenia; [1]e-mail; david.bole@zrc-sazu.si (*corresponding author*); [2]e-mail; jani.kozina@zrc-sazu.si; [3]e-mail; jernej.tiran@zrc-sazu.si

Abstract. The aim of this paper is to make a typology of industrial towns according to their economic performance and to establish place-specific local factors influencing the typology and their territorial distribution. We collected 15 indicators of economic performance for 23 small industrial towns in Slovenia, and with the method of Principle Component Analysis with k-means clustering made a typology of small industrial towns. The results show a great variety of small industrial towns, with many of them having a strong economic performance. In the discussion, we relate the findings to the overall transformation of industry in the post-socialist context, to re-industrialisation tendencies and to place-specific factors such as peripherality and specific historical events (polycentric policies). We conclude with the call to continue studying small industrial towns through the prism of opportunities and to address their weaknesses and maximise their place-specific strengths.

Contents:

1. Introduction

Industrial towns are rarely the focus of geographic research. This is mainly because the first decade of the 21st century was marked by the rise of the digital and media economy, or the new "post-industrial economy" (Flew, 2010). Celebration of the services-based "new economy" was a result of the de-industrialisation of cities and regions in the Global North that led policy-makers and urban researchers to a desperate search for the new post-industrial future (Miles, 2005). Some authors noted that the reduction of "smoke-stack industries" will lead to replacement by services and "sunrise" industries (Lever, 1991: 995). Culture-led revitalisation and development became a focus of research and policy-making, not only in larger cities but also in smaller towns (see Drummond and Snowball, 2019; Lorentzen and Heur, 2012; Środa-Murawska et al., 2017; Waitt and Gibson, 2009).

Deindustrialisation and strengthening of the service economy was particularly noticed in larger metropolitan cities, while smaller towns retained more industrial employment (Henderson, 2010). In Europe, it seems that the small industrial town is very much alive: a recent study established that 27% of the European population lives in small and medium-sized towns and that industrial employment there is above average (Servillo et al., 2017). Another study suggested that about 20% of Europeans live in smaller industrial towns (Koceva et al., 2016). It is surprising that the small industrial town – as a ubiquitous phenomenon in Europe – is so rarely and one-sidedly presented in academic research.

The majority of available literature on industrial towns deals with how (un)successful they are in facing structural change. It is irrefutable that deindustrialisation left many smaller and medium-sized European towns with socio-economic and environmental problems resulting in shrinkage (Wolff and Wiechmann, 2018) and that many of those transformed, or at least tried to transform, to a more service-based economy (Bartholomae et al., 2017).

Wirth et al. (2016) studied small and peripheral towns in Germany and Japan and established how the loss of jobs in mining and industry is responsible for the downward spiral of demographic and cultural shrinkage. The connection between small industrial towns and shrinkage is often made, not just in Europe but also in Australia and Japan (Martinez-Fernandez et al., 2016). There are many papers linking the demise of industry with small town shrinkage on a national scale: Pirisi et al. (2015) identified "rust towns" in Hungary, which were rapidly industrialised under socialism, but were left behind in the new market era. They also identified a more successful type of industrial town called the "single-company town", which managed a more successful transition based on the global success of a single company. The study of Central German small industrial towns has shown that despite dramatic de-economisation and depopulation, those towns can be quite successful in finding developmental niches, especially with endogenous initiatives grounded in industrial history like ecology or education (Leetmaa et al., 2015). The North Macedonian example is less optimistic and suggests a return to agriculture and renewable energy industries as a possible future (Siljanoska et al., 2012). The example of small towns in the "rust belt" in USA demonstrated how industry-based economies can be transformed with the paradigm of place-based development by community participation and attracting new workers and businesses (Bowns, 2013).

Besides deindustrialisation and shrinkage, geographic research on varieties of economic performance of industrial towns is scarce. There are two that we consider to be the most important. The first study is a typology of small and medium-sized Swiss towns based on economic performance and socio-economic dynamics (Meili and Mayer, 2017). This research identified two industrial types of towns: low- and high-tech towns, where the latter, unsurprisingly, had a better demographic and economic performance. An interesting observation in this study is that industrial towns were more isolat-

ed and better connected with their hinterland than with neighbouring urban centres. The second study was based on the European level and showed that industrial towns have larger unemployment rates compared to other towns (Servillo et al., 2017). The majority of industrial towns have had lower employment growth rates since 2000, but due to the lack of data, no direct references concerning their economic performance were made. The abovementioned research often views small industrial towns as a homogeneous group or as having some basic distinctions between them. We are missing basic research showing their economic heterogeneity and complexity. If we can distinguish between different types of industrial towns, we can also prepare more targeted and place-specific strategies for them.

Our main theoretical contribution is twofold. First, we want to demonstrate the possible variety of industrial towns according to their economic performance in Slovenia. The aim is to challenge the perception of industrial towns as gloomy in terms of economic vibrancy. Our second contribution is in determining if there are any locally-specific patterns of economic performance. The aim is to better understand if the development of industrial towns is "predetermined" by fundamental global processes or if they still have space for a more "independent" development. Both theoretical contributions could be summarised into the following two specific objectives:

• to make a typology of industrial towns according to their economic performance;

• to establish territorial and historical perspectives on why certain types of industrial towns are more or less economically successful.

The objectives are tested on the example of the urban system of Slovenia, which is one of the EU countries with highly developed industry (Gierańczyk, 2010) and where specific industrialisation in the socialist era left many smaller towns "over-industrialised" in comparison to larger towns (Bole et al., 2019).

2. Research materials and methods

In this paper, we use the term "industrial towns" to denote urban settlements with an above-average employment in the industrial sector. Industry is defined by the sectors of manufacturing (B), mining (C), and construction (F), in the NACE classification. The first task was to define small towns in Slovenia. There are no common definitions, since the term can differ based on the specifics of the national urban system. In our case, the common definition from the latest ESPON TOWN study proved suitable (Servillo et al., 2017). The small and medium-sized settlement (from now on abbreviated to "small town") is defined as a place having 5,000 to 50,000 inhabitants, which also corresponds to the reality of the Slovene urban system. The majority of local and regional centres in the hierarchy of the Slovene urban system fall into this population threshold (Nared et al., 2017). There are two towns with populations just above 50,000, so they were included in the analysis (Kranj with 51,000 and Koper with 56,000 inhabitants). The spatial unit of analysis was the *občina*, corresponding to EUROSTAT's Local Administrative Unit 2 (LAU2 level).

The second task was to define the industrial character of the town. As there are no universally accepted definitions of what constitutes an industrial town, we decided to extract those towns that deviate the most in terms of industrial workplaces. We did this by applying a measure of standard deviation, which identifies those towns with "over-expressed" industrial workplaces relative to the average within the urban system. We used 0.5 standard deviation above the mean measure, which cuts off towns with more than 42.8% of workplaces in industry. This method was used in another study (Bole et al., 2019) and it proved to be a suitable proxy to identify the most industrialised towns. This method established 23 small industrial towns out of 100 small towns in Slovenia.

The third task was to select the data for the typology of economic performance. Some direct indicators of economic performance of firms are not aggregated at LAU2 level, so we had to find additional indirect indicators. We were inspired by papers facing a similar challenge, which sometimes took wider socio-economic indicators such as unemployment or commuting as a proxy of economic performance (Meili and Mayer, 2017; Novotný et al., 2016). Most of the included indicators either:

• directly indicate the economic performance of towns;

- describe the socio-economic situation of towns as a proxy for economic performance;
- describe the structure of firms in towns;

Altogether, we collected 15 indicators (see Table 1), but we had to omit one (share of high-tech companies) due to severe violations of normal distribution. Data were transformed to follow a normal distribution. They were obtained from the Statistical Office of the Republic of Slovenia and Slovenian Intellectual Property Office and are valid for the year 2016.

To reduce dimensionality of data and improve classification of towns, we performed principle component analysis (PCA) in the fourth task. We sequenced the PCA following Beaumont and Dracup (2012): data inspection, component extraction, component rotation, and obtaining individual component scores.

To uncover the structure in those component scores we decided on a non-hierarchical cluster analysis in the fifth step. First, we performed a hierarchical clustering technique by Ward's method and Squared Euclidean distance to select the number of clusters. Second, we applied the non-hierarchical *k*-means clustering to allocate the towns into meaningful groups. All the steps are summarised in Table 2.

3. Results

3.1. Principal Component Analysis of economic performance

Extracting principal components revealed that communalities were all above 0.7 and that the first five components with eigenvalues of >1 explained 79% of variance. In the next step, we decided to rotate component loadings to improve its interpretation. We followed the sequence of Beaumont and Dracup (2012): first, we performed oblique rotation, but due to low correlation of the components (<0.3), we executed orthogonal varimax rotation instead, which assumes that components are uncorrelated.

The rotated component matrix can be observed in Table 3. To enable better interpretation of individual components we selected only values above 0.3. Component 1 reveals **strong economic performance** because it is associated with the presence of high- and medium-tech companies, high value added per employee, and high incomes. Component 2 reveals **poor employment performance** since it is strongly associated with both types of unemployment and also has weak associations with low income and lower rate of high-growth firms. Com-

Table 1. Indicators used in the classification.

	Indicator	Small ind. towns (n=23)		All towns (n=100)	
		Mean	STD	Mean	STD
Economic performance indicators	Investment index *per capita*	2.37	1.50	1.61	1.54
	High growth firms (%)	0.27	0.23	0.28	0.32
	Number of patents per 1,000 people	0.0023	0.0021	0.0016	0.0016
	Employed in medium- and high-tech firms (%)	9.51	10.69	3.61	6.81
	Medium- and high-tech firms (%)	1.44	0.57	1.08	0.82
	Medium-tech firms	1.26	0.46	0.92	0.73
	Value added per employee (€)	37,630	7,185	33,962	8,057
Socioeconomic indicators	Average income (gross) (€)	1420	127	1364	149
	Foreign workforce (%)	5.91	3.39	5.36	3.72
	Commuters (%)	56.76	13.77	68.04	15.37
	Long-term unemployment (%)	5.77	2.07	6.04	2.57
	Unemployment (%)	11.26	3.35	11.84	3.94
Firm structure	Medium-sized and big firms (%)	1.47	0.52	0.93	0.60
	Employment in medium-sized and big firms (%)	55.32	11.11	31.80	23.43

Table 2. Methodological steps taken.

Steps	1) Definition of small towns	2) Definition of industrial character of small towns	3) Selection of indicators of economic performance	4) Data reduction	5) Typology of small industrial towns
Criteria	5,000 < LAU 2 level < 56,000	Industrial workplaces (B, C, F) > M + 0.5 SD	- direct indication - indirect indication - structure of firms	Principle Component Analysis (PCA)[abc]	- hierarchical clustering (Ward's method and Euclidean distance) - non-hierarchical k-means (Iterate method)
Outcome	100 small towns	23 small industrial towns	14 indicators of economic performance	5 components of economic performance	5 types of small industrial towns

a. *Bartlett's test (p<0.001) and Kaiser-Meyer-Olkin measure (0.53) are acceptable for PCA.*b. *Determinant value of the correlation matrix is above the minimum threshold of 0.00001*c. *Anti-image matrix showed that the majority of indicators had a good measure of sampling adequacy (MSA>0.5)*

ponent 3 reveals **active and developing performance** since it is associated with high investments *per capita* and fast-growing firms. Component 4 reveals **innovative and self-sufficient performance** marked by a high number of innovations and larger firms, but lower shares of commuters. At first sight, this is a contradictive component, since innovative and big firms should attract more commuters, not fewer. However, this is characteristic of Slovene post-socialist transformation of manufacturing, where certain larger firms managed to successfully transform and became innovative. Yet they are still embedded in their local environment in remote areas and therefore depend on the local workforce (towns like Idrija, Velenje, Ribnica). For this reason, they represent a closed model of innovation characterised by older – yet successful – industrial towns and regions (Tödtling et al., 2011). Component 5 reveals **foreign-based and advanced performance** with strong association of foreign workers and those employed in medium and high-tech firms, which is not so significant for Slovenia, since the average share of foreign workforce in industrial towns is low (Kozina, 2018).

3.2. Typology of small industrial towns

Clustering of individual component scores can reveal groups or typology of industrial towns according to their economic performance. Ward's clustering technique and the number of components indicated that the optimal number of clusters (or types) is five. *K*-means cluster analysis was iterated twice to maximise the difference between clusters and minimise the difference within them. Figure 1 presents distances of components from cluster centres and allows for interpretation of individual clusters or types.

The first type of towns is represented by foreign-based and high-tech firms, and simultaneously by weak economic performance (values of components 2 and 5 are high and value of component 1 is low). This could indicate a more **neoliberal industrial town** setting, where firms either hire foreign workers to lower production costs or due to unavailability of skilled workforce in the town or region. However, higher unemployment, lower wages and other component scores imply that this is a more "problematic" type considering economic performance. Three towns fall into this type: one more suburban type of industrial town (Hoče-Slivnica near Maribor), one older industrial centre close to the Croatian border (Metlika), and Slovenske Konjice, also situated in the eastern part of Slovenia.

Table 3. Rotated component matrix.

	Component				
	1	2	3	4	5
Medium- and high-tech firms (%)	0.84	0.32			
Medium-tech companies	0.82	0.39			
Value added per employee	0.80				
Average income (gross)	0.68	-0.32			
Employed in medium- and high-tech firms	0.54		0.31		0.51
Long-term unemployment (%)		0.97			
Unemployment (%)		0.93			
Investment index *per capita*			0.88		
Medium-sized and big firms (%)			0.81	0.31	
High-growth firms (%)	-0.36	-0.33	0.51	-0.48	
Number of patents per 1000 people				0.86	
Commuters (%)			-0.34	-0.76	
Employment in medium-sized and big firms (%)			0.46	0.67	
Foreign workforce (%)					0.84

Rotation Method: Varimax with Kaiser Normalisation, rotation converged in 7 iterations.
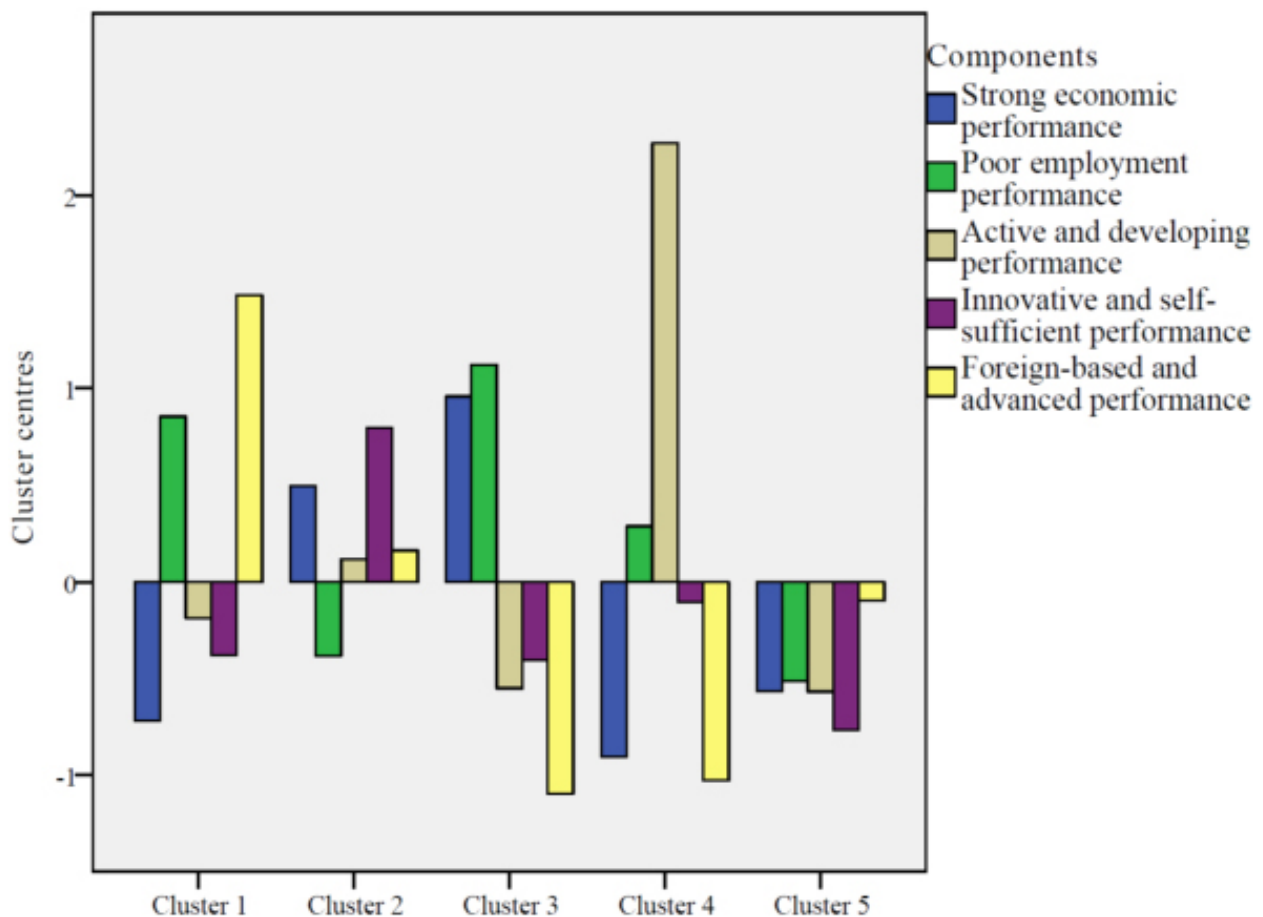

Fig. 1. Final cluster centres of individual components

The second type is most represented by the component of innovative and self-sufficient performance, followed by component 1, marking strong economy. Analogically to Simon's (2009) expression "hidden champions" denoting peripheral towns with internationally important industry, we called those towns **post-socialist champion towns**. They are more-or-less dependent on the success of a single firm, which managed to transform after the fall of socialism and became globally important. They could relate closely to the "single-industry town" type in Hungary (Pirisi et al., 2015), with the only difference being that they are the prevailing type of industrial towns in Slovenia. Nine towns fall into this category and almost all of them have a long-lasting mining and/or industrial tradition. Velenje and Idrija are such examples, where each town has one or two innovative and globally important companies. At the same time, this type is quite vulnerable to, and can quickly face, socio-economic problems in the case of those large firms outsourcing or downgrading.

The third type of towns is the most ambivalent and could be named **economically polarised towns**. Component 2, marking high unemployment and below-average share of high-growth companies, is expressed the most. However, the value of component 1, which marks strong economic performance (higher-tech firms, high value added per employee and above-average income), is also high. Three towns belong to this type and are towns clearly undergoing transformation and restructuring. Prebold is an example of such a town, with a textile manufacturing tradition from the 19th century. The post-socialist transition was not favourable in this town, which underwent deindustrialisation and was economically stalled. But after investments in a new business park and a finished motorway connection to Ljubljana, a certain amount of SME activity started again, perhaps indicating a new industry-based economic development for the future.

The fourth type of towns is distinctly marked by component 3, indicating a high-growing and investment-favourable economic environment. Interestingly, this "active performance" seems to be in lower-tech firms, since components 1 and 5 are strongly below average in this type. After inspecting the two towns that fall into this category, we named it **dynamic low-tech towns**. Those

industrial towns (Gornja Radgona and Kidričevo) are single-industry towns, based on older firms in low-tech manufacturing (food industry, aluminium product manufacturing). Recently, a more diversified economic structure is becoming apparent, with new SME activity complementing traditional industries. In contrast to the third type (economically polarised towns), this type did not experience negative deindustrialisation to the same degree, and innovation potential expressed through patent activity remained high. This is not unusual, since low-tech firms, just like high-tech firms, also need investments and human capital to keep up their competitiveness on the global market (Hansen et al., 2014).

The last type of towns is indistinguishable according to individual component scores. We can name them **mixed economic performance towns**. The six towns that belong to this category are smaller in terms of population and are located closer to larger urban centres. Perhaps they "borrow size" from larger centres in the vicinity (Meijers and Burger, 2017) and retain some industrial and manufacturing functions within the larger city region. Most of those towns have new, post-socialist industrialisation (Gorenja vas - Poljane, Ivančna Gorica, Šmartno pri Litiji), but not all (Ribnica). Nevertheless, their common characteristic is a rather traditional and rural character, since they were known in the past for their craft workshops, which apparently transformed to SME-based manufacturing after the post-socialist transition.

4. Discussion

In the discussion, we focus on the five principles that came out of our findings. The first three principles are connected with the aim of showing the variety of small industrial towns. We discuss: their heterogeneity of economic performance; the changing role of industry within them; and recent re-industrialisation tendencies. The last two principles are connected with the spatial perspective of their variety: we discuss the role of "place-specific" and historic aspects of their spatial distribution.

4.1. Diverse or uniform economic performance of small industrial towns in Slovenia?

The presented typology shows that the economic performance of small industrial towns is varied and ranges from "problematic" (for instance the "neo-liberal" type), to successful ("post-socialist champion" type), with many variances in between ("dynamic low-tech" or "mixed performance" type). The black-and-white picture portrayed under the neologism of deindustrialisation is over-simplistic and we agree with Doussard and Schrock (2015) in calling for a more place-specific investigation of the role of industry in present-day regions and cities. The comparison of industrial towns versus all towns in Table 1 reveals the above-average economic performance of industrial towns. In fact, our typology shows that only a few industrial towns can be labelled as distinctly problematic – in our case 3 out of 23, all of the "neo-liberal" type. Other types of towns have either started to recover from post-socialist transition and deindustrialisation (the "polarised" type) or have fully adapted and transformed

("dynamic low-tech", "post-socialist champions" and "mixed" type). This may also indicate that, at least in Slovenia, the main de-industrialisation phase has already ended, as some former industrial and mining towns have fully transformed to a new economic base.

Although the prevalent economic base of Slovenia and its urban system is in services (Bole, 2012), industry remains a strong factor in its economic development. Deindustrialisation does not imply that industry has become obsolete or unimportant for towns. Rather, we want to emphasise that negative and later positive deindustrialisation was necessary for industry to transform technologically and improve its productivity. In practice this means that industrial employment fell, but productivity and profits rose (Rowthorn and Wells, 1987). This was particularly important for Slovene socialist-style industrial towns, which found themselves technologically lagging behind after the political transition in the 1990s. Some of them transformed and changed their economic base completely – especially those nearer to the capital Ljubljana – but those that managed to go through negative and positive deindustrialisation became successful. The "post-so-
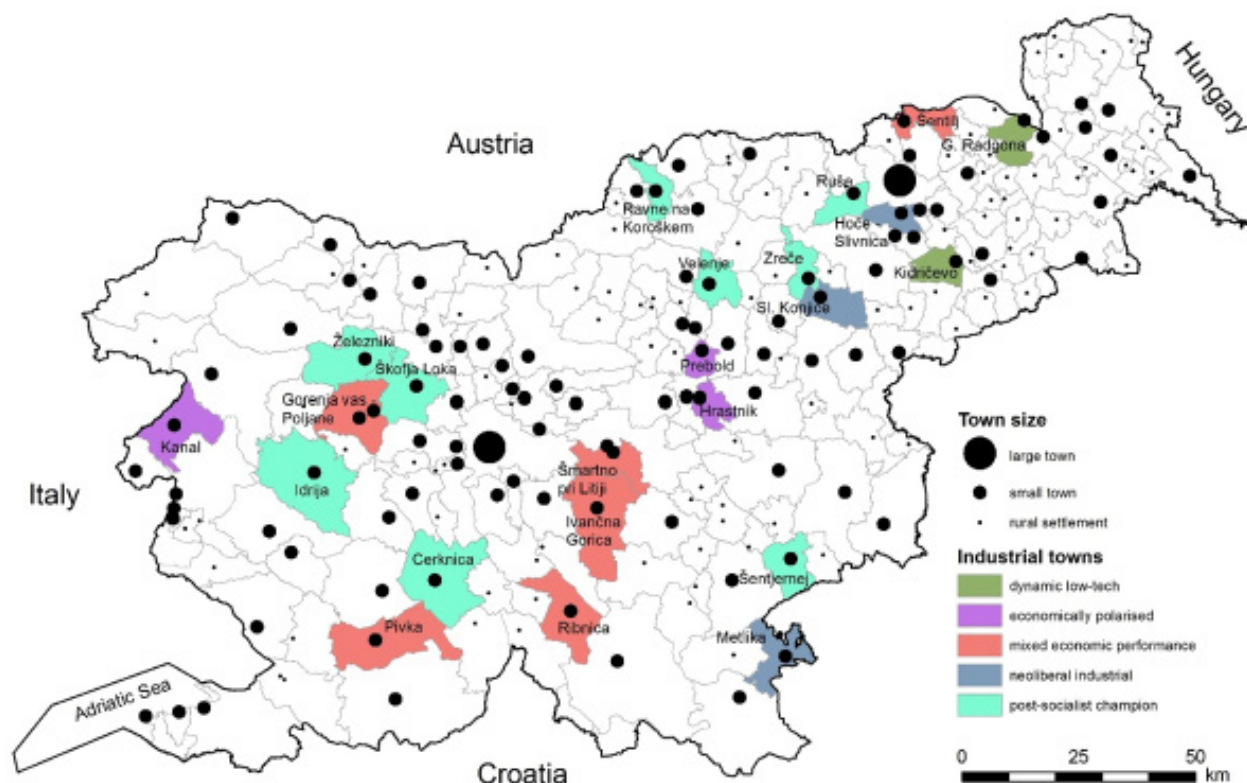

Fig. 2. Typology of small industrial towns in Slovenia

cialist champions" type is one such example, since those towns have companies that are extremely export-orientated. It is interesting to note that six out of nine "post-industrial champion" towns have been recognised by other research as having a "moderate or high economic strength" and another two as having the potential to obtain that in the future (Kušar, 2017).

The next process that could be deduced from our typology is reindustrialisation. This process is rarely discussed in the present literature. Some types of towns in our classification show signs of either new industrialisation or re-industrialisation. "Mixed performance" towns were mostly not industrial in the past, but have developed new industry over the last three decades. Ivančna Gorica developed a motorcycle component industry, which is the result of a small-scale entrepreneur succeeding globally in a relatively niche market. "Dynamic low-tech" towns also experience reindustrialisation to a certain degree. Kidričevo was a typical socialist industrial town that was built because of the aluminium processing industry. After the firm restructured and downsized in the 1990s, new foreign and domestic firms eventually settled. Today, aluminium processing is just one of the industrial activities, alongside the leather, metal and construction industries. Reindustrialisation has been observed in other countries – especially in post-socialist Central and Eastern Europe – based mainly on the development of "export sophisticated manufacturing" (Stojčić and Aralica, 2018). In Poland, the authors of one research propose the term "trans-industrial" region, to describe the fluid nature of simultaneous deindustrialisation and reindustrialisation as observed in the Katowice conurbation (Krzysztofik et al., 2016; 2019). We agree with this proposal, since it corresponds to the actual dynamics of certain industrial towns in Slovenia, where reindustrialisation, deindustrialisation and industrial stagnation can occur concurrently within a country, region or even town.

4.2. Territorial perspectives of small industrial town types

We believe there are also more place-specific local factors influencing the typology of towns and their territorial distribution. Very specific is the pattern of the "post-socialist champion" type. These are the most iconic industrial towns in Slovenia, with important firms that contribute to the above-average export orientation of Slovenia on the international scale (Nared et al., 2017). Their territorial distribution shows that many of them are peripheral, with poor transport connections to larger urban nodes, which is reinforced by the data displaying lower commuting ratios in contrast to other types of towns. This means that towns with large and important industrial firms are more isolated in terms of daily commuting. This is consistent with the finding from the Swiss study (Meili and Mayer, 2017) and could imply that peripherality enables their successful industry-based economic performance. It seems that the proximity to the two larger urban nodes (Ljubljana and Maribor) had an opposite effect: many industrial towns that were closer were deindustrialised in the early 1990s and became satellite towns with limited economic functions, or transformed their economic base to "light" service-sector activities like shopping, etc. (towns like Kamnik, Vrhnika …). This sparks interesting research questions for the future: is peripherality a factor that made industrial towns more resilient, because they were forced to reinvent their economies in order to survive the restructuring after the 1990s? We can confirm that those towns have a strong "pioneering spirit" (Harfst et al., 2018), exhibited through high concentrations of patents on innovations (Kozina and Bole, 2018). The case of Jutland – an industrial, successful and peripheral region in Denmark – showcased how entrepreneurs were required to be more technologically advanced, innovative and internally organised to compete with the economies of metropolitan areas (Hansen, 1991).

The second territorial perspective that we observed is a relative dispersion of industrial town types. The map (Fig. 2) shows that distribution is not limited to any particular part of the country (north/south, east/west, centre/border). This is due to the peculiarities of Slovenia's industrialisation

during the socialist era. In 1974, the new constitution of Yugoslavia identified municipalities as not only administrative but also economic units. The rationale of such territorial development was to develop centres that would be equally distributed across the territory and would provide the same possibilities for work to all inhabitants. This idea suited the economic, social and ideological circumstances (egalitarianism and polycentrism) of that period (Drozg, 2012). In line with these principles, smaller towns as well as completely rural areas began industrialising with factories, which is still characteristic today and explains the wide territorial distribution of industrial towns. Regional centres and older industrial towns experienced stagnation, while a completely new industry began developing in smaller towns, which became the prominent feature of the Slovene urban system (Vrišer and Rebernik, 1993; Kozina and Bole, 2018). Although many small towns subsequently changed to a service-orientated economic base (Bole, 2012), small industrial towns remain widespread and vibrant.

It is apparent that the performance of industrial towns is not dependent merely on global or national forces, but that they have the capacity to develop their own socio-spatial trajectory, independently of regional processes. This is called the concept of territorial autonomy (Servillo et al., 2017) and can be seen in Slovenia in industrial towns with a more peripheral location. Those towns have managed to transform due to place- and history-specific factors that we can only speculate about: it could be industrial culture, the embedded knowledge or specific skills of the workforce, strong closed innovation processes, or other locally-specific factors.

There is a certain limitation to our study that we have to acknowledge. It is connected with the availability of data on economic performance. Because they are limited, we included "proxy" data to improve the classification. Future research should perhaps concentrate on aggregating firm-based data, which will surely be a challenging task, but can potentially improve the classification. Additionally, our typology is based on current data showing the present typology of towns. Looking into historical data and historical typologies could be useful for searching for varieties of industrial town transformations.

5. Conclusions

The objective of this paper is to present the variety of economic performance in industrial towns and to investigate if there are any patterns and factors related to their territorial distribution. We have demonstrated that the small industrial town in Slovenia is a diverse phenomenon with economic performance ranging from strong (the majority of towns) to weak (the minority of towns) and somewhere in between. We believe that our typology also shows that the transformation to a post-industrial economy has not finished, at least not in the expected way, where they would have turned to an "advanced" service-based economy and lost their industrial character. Industrial towns are fewer, but those that transformed remain industrial, often economically successful and an important part of the national export-based economy. Our theoretical implication is that post-industrial transformation includes not only deindustrialisation, but also the formation of new – and transformation of old – industrial activities in small industrial towns. This transformation of cities is an ongoing process following varied pathways without a final or definitive outcome. It is also important to note that not just high-tech industries but also medium- and low-tech sectors play a part in this transformation.

The typology also revealed some more locally-specific factors of their incidence. The presence of former socialist mono-industrial towns with good economic indicators suggests that historical and spatial factors are also important. This is a theoretical implication with practical consequences, since it calls for more place-sensitive policies that respond to the structural opportunities, potentials and constraints of each place (Iammarino et al., 2017). In the case of Slovenia, this means that policies for "low-tech dynamic" towns should recognise recent re-industrialisation tendencies and should be different from those of the "neo-liberal" type, which face a specific set of social and economic problems.

Our message is that industrial towns are diverse and vibrant and should be viewed through the prism of opportunities and not only through decline. In addition, they should be studied individually so that future policy interventions would be able to address their weaknesses and maximise their place-specific strengths.

Acknowledgements

References

Andreoni, V. and Galmarini, S. (2016). Mapping socio-economic well-being across EU regions. *International Journal of Social Economics*, 43(3): 226-243. DOI: http://doi.org/10.1108/IJSE-09-2014-0178

Bartholomae, F., Woon Nam, C. and Schoenberg, A. (2017). Urban shrinkage and resurgence in Germany. *Urban Studies*, 54(12): 2701-2718. DOI: http://doi.org/10.1177/0042098016657780

Beaumont, R. and Dracup, C. (2012) An introduction to Principal Component Analysis & Factor Analysis Using SPSS 19 and R (psych package). Available at: http://assessment-matters.weebly.com/blogs/an-introduction-toprincipal-component-analysis-factor-analysisusing-spss-19-and-r-psych-package (March 2019).

Bole, D. (2012). Socio-economic characteristics of the Slovene urban system. *Geografski Vestnik*, 84(1).

Bole, D., Kozina, J. and Tiran, J. (2020). Impact of industry on socioeconomic performance of small and medium-sized towns. *Moravian Geographical Reports*. In review.

Bowns, C. (2013). Shrinkage happens … in small towns too!: Responding to de-population and loss of place in Susquehanna River Towns. *URBAN DESIGN International*, 18(1), 61-77. DOI: http://doi.org/10.1057/udi.2012.27

Doussard, M. and Schrock, G. (2015). Uneven decline: linking historical patterns and processes of industrial restructuring to future growth trajectories. *Cambridge Journal of Regions, Economy and Society*, 8(2): 149-165. DOI: http://doi.org/10.1093/cjres/rsv003

Drozg, V. (2012). Polycentric Urban System Between State Regulation and Market Economy—The Case of Slovenia. In *Development of the Settlement Network in the Central European Countries* (pp. 3-12). DOI: http://doi.org/10.1007/978-3-642-20314-5_1

Drummond, F. and Snowball, J. (2019). Cultural Clusters as a Local Economic Development Strategy in Rural Small-Town Areas: Sarah Baartman District in South Africa. *Bulletin of Geography. Socio-economic Series*, 43(43): 107-119. DOI: http://doi.org/10.2478/bog-2019-0007

Flew, T. (2010). Toward a Cultural Economic Geography of Creative Industries and Urban Development: Introduction to the Special Issue on Creative Industries and Urban Development. *The Information Society*, 26(2): 85-91. DOI: http://doi.org/10.1080/01972240903562704

Gierańczyk, W. (2010). Development of High Technologies as an Indicator of Modern Industry in the Eu. *Bulletin of Geography. Socio-Economic Series*, 14(14): 23-35. DOI: http://doi.org/10.2478/v10089-010-0012-3

Henderson, J. V. (2010). Cities and Development. *Journal of Regional Science*, 50(1): 515-540. DOI: http://doi.org/10.1111/j.1467-9787.2009.00636.x

Hansen, N. (1991). Factories in Danish Fields: How High-Wage, Flexible Production has Succeeded in Peripheral Jutland. *International Regional Science Review*, 14(2): 109-132. DOI: http://doi.org/10.1177/016001769101400201

Hansen, T., Winther, L. and Hansen, R. F. (2014). Human Capital in Low-Tech Manufacturing: The Geography of the Knowledge Economy in Denmark. *European Planning Studies*, 22(8): 1693-1710. DOI: http://doi.org/10.1080/09654313.2013.797384

Harfst, J., Wust, A. and Nadler, R. (2018). Conceptualizing industrial culture. *GeoScape*, 12(1): 1-9.

Iammarino, S., Rodríguez-Pose, A. and Storper, M. (2017) *Why regional development matters for Europe's economic future*. Working Papers of the Directorate-General for Regional and Urban Policy, WP 07/2017. Brussels: European Commission.

Koceva, M.M., Brandmüller, T., Lupu, I., Önnerfors, Å., Corselli-Nordblad, L., Coyette, C. and Wolff, P. (Eds.). (2016). *Urban Europe: statistics on cities, towns and suburbs* (2016 edition). Luxembourg: Publications Office of the European Union.

Kozina, J. (2018). Demographic characteristics of creative workers: under-activated development potentials in Slovenia? *Acta geographica Slovenica*, 58(2): 111-121. DOI: http://doi.org/10.3986/AGS.4602

Kozina, J. and Bole, D. (2018). The impact of territorial policies on the distribution of the creative economy: tracking spatial patterns of innovation in Slovenia. *Hungarian Geographical Bulletin*, 67(3): 259-273. DOI: http://doi.org/10.15201/hungeobull.67.3.4

Krzysztofik, R., Tkocz, M., Spórna, T. and Kantor-Pietraga, I. (2016). Some dilemmas of post-industrialism in a region of traditional industry: The case of the Katowice conurbation, Poland. *Moravian Geographical Reports*, 24(1): 42-54. DOI: http://doi.org/10.1515/mgr-2016-0004

Krzysztofik, R., Kantor-Pietraga, I. and Kłosowski, F. (2019). Between Industrialism and Postindustrialism—the Case of Small Towns in a Large Urban Region: The Katowice Conurbation, Poland. *Urban Science*, 3(3): 68. DOI: http://doi.org/10.3390/urbansci3030068

Kušar, S. (2017). Economic development of municipalities in Slovenia. *Geographical review* 38: 95-109.

Leetmaa, K., Kriszan, A., Nuga, M. and Burdack, J. (2015). Strategies to Cope with Shrinkage in the Lower End of the Urban Hierarchy in Estonia and Central Germany. *European Planning Studies*, 23(1): 147-165. DOI: http://doi.org/10.1080/09654313.2013.820100

Lever, W. F. (1991). Deindustrialisation and the Reality of the Post-industrial City. *Urban Studies*, 28(6): 983-999. DOI: http://doi.org/10.1080/00420989120081161

Lorentzen, A. and Heur, B. van (2012). *Cultural Political Economy of Small Cities*. Oxon: Routledge.

Martinez-Fernandez, C., Weyman, T., Fol, S., Audirac, I., Cunningham-Sabot, E., Wiechmann, T. and Yahagi, H. (2016). Shrinking cities in Australia, Japan, Europe and the USA: From a global process to local policy responses. *Progress in Planning*, 105: 1-48. DOI: http://doi.org/10.1016/j.progress.2014.10.001

Meijers, E. J. and Burger, M. J. (2017). Stretching the concept of "borrowed size." *Urban Studies*, 54(1): 269-291. DOI: http://doi.org/10.1177/0042098015597642

Meili, R. and Mayer, H. (2017). Small and medium-sized towns in Switzerland: Economic heterogeneity, socioeconomic performance and linkages. *Erdkunde*, 71(4): 313-332. DOI: http://doi.org/10.3112/erdkunde.2017.04.04

Miles, S. (2005). "Our Tyne": Iconic Regeneration and the Revitalisation of Identity in NewcastleGateshead. *Urban Studies*, 42(5–6): 913-926. DOI: http://doi.org/10.1080/00420980500107326

Nared, J., Bole, D., Valjavec, M. B., Ciglič, R., Goluža, M., Kozina, J., Visković, N. R., Repolusk, P., Rus, P., Tiran, J. and Istenič, M. Č. (2017). Central settlements in Slovenia in 2016. *Acta geographica Slovenica*, 57(2): 7-32. DOI: http://doi.org/10.3986/AGS.4606

Novotný, L., Csachová, S., Kulla, M., Nestorová-Dická, J. and Pregi, L. (2016). Development Trajectories of Small Towns in East Slovakia. *European Countryside*, 8(4): 373-394. DOI: http://doi.org/10.1515/euco-2016-0026

Pirisi, G., Trócsányi, A. and Makkai, B. (2015). Between shrinking and blooming: the crossroad of small towns' urbanisation in Hungary. *Annales Universitatis Paedagogicae Cracoviensis Studia Geographica*, 8: 12–28.

Rowthorn, R. E. and Wells, J. R. (1987). *De-Industrialization Foreign Trade*. Cambridge Cambridgeshire; New York: Cambridge University Press.

Servillo, L., Atkinson, R. and Hamdouch, A. (2017). Small and Medium-Sized Towns in Europe: Conceptual, Methodological and Policy Issues. *Tijdschrift Voor Economische En Sociale Geografie*, 108(4): 365-379. DOI: http://doi.org/10.1111/tesg.12252

Siljanoska, J., Korobar, V. P. and Stefanovska, J. (2012). Causes, Consequences and Challenges of Shrinkage: The Case of Small Cities in a Transition Society. *Built Environment*, 38(2), 244-258. DOI: http://doi.org/10.2148/benv.38.2.244

Simon, H. (2009). *Hidden Champions of the Twenty-First Century: The Success Strategies of Unknown World Market Leaders*. Heidelberg; London; New York: Springer.

Środa-Murawska, S., Biegańska, J. and Dąbrowski, L. (2017). Perception of the role of culture in the development of small cities by local governments in the context of strategic documents – a case study of Poland. *Bulletin of Geography. Socio-Economic Series*, 38(38): 119-130. DOI: http://doi.org/10.1515/bog-2017-0038

Stojčić, N. and Aralica, Z. (2018) (De)industrialisation and lessons for industrial policy in Central and Eastern Europe. *Post-Communist Economies*, 30(6): 713-734, DOI: http://doi.org/10.1080/14631377.2018.1443251

Tödtling, F., Reine, P. P. and van Dörhöfer, S. (2011). Open Innovation and Regional Culture—Findings from Different Industrial and Regional Settings. *European Planning Studies*, 19(11): 1885-1907. DOI: http://doi.org/10.1080/09654313.2011.618688

Vrišer, I. and Rebernik, D. (1993). The socioeconomic and functional orientation of Slovene towns. *Geografski zbornik – Acta geographica* 33: 7–40.

Waitt, G., and Gibson, C. (2009). Creative Small Cities: Rethinking the Creative Economy in Place. *Urban Studies*, 46(5–6): 1223-1246. DOI: http://doi.org/10.1177/0042098009103862

Wirth, P., Elis, V., Müller, B. **and Yamamoto, K.** (2016). Peripheralisation of small towns in Germany and Japan – Dealing with economic decline and population loss. *Journal of Rural Studies*, 47: 62-75. DOI: http://doi.org/10.1016/j.jrurstud.2016.07.021

Wolff, M. and Wiechmann, T. (2018). Urban growth and decline: Europe's shrinking cities in a comparative perspective 1990–2010. *European Urban and Regional Studies*, 25(2): 122-139. DOI: http://doi.org/10.1177/0969776417694680