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Transformation in Industrial Towns in Slovenia and Switzerland

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Abstract

This report is the result of the first phase of the SNF Project on Industrial Towns titled "Places that don't matter? Socio-economic transformation of industrial towns in Switzerland and Slovenia", SNF grant number 192764. The report explores industrial transformation in small- and medium-sized towns (SMSTs) using six case-study towns—namely Biel/Bienne, Glarus and Mendrisio in Switzerland and Idrija, Kočevje, and Trbovlje in Slovenia. It provides a general overview of the institutional contexts of the case-study towns in their respective countries and regional profiles. The report describes the process of industrial transformations in different towns' contexts.

Key words: entrepreneurship; industrial culture; new industrial path development; institutional context; regional innovation system; local policy

JEL classification: L26, R58, Z18, P48, P25, P16, O38

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Executive Summary

The project "*Places that don't matter? Socio-economic transformation of industrial towns in Switzerland and Slovenia*" deals with small- and medium-sized towns (SMSTs) and their various socio-economic transformation paths. So far, economic geography has paid far too little attention to SMSTs. Past research has focused on economic transformation in high-performing regions and large urban centres rather than on SMSTs, which are often portrayed as “places that don’t matter.” Policy recommendations derived from best practise development models in successful cities are poorly adapted to smaller industrial towns and their wider socio-institutional context. The lack of contextual, place-based policies tailored to SMSTs, suggests a need to deepen understanding of their various socio-economic transformations and the specific institutional contexts in which the transformations have taken place. The research follows a case study design, with an in-depth analysis of six towns, three in each participating country—Slovenia and Switzerland. The project addresses the following research questions:

- What are the trajectories of socio-economic transformation of industrial towns in Switzerland and Slovenia? How do these trajectories differ within and between the countries, and between towns in different phases of industrialization (from neo-industrial to post-industrial)?
- To what extent can we use the concepts of industrial culture and slow innovation to explain the diversity of trajectories of socio-economic transformation of industrial towns in Switzerland and Slovenia?
- How do stakeholders at the community level in the selected industrial towns respond to socio-economic transformation processes? How do these reactions differ between the two countries?
- In what ways are the transformation processes in the industrial towns related to endogenous and exogenous development dynamics? To what extent can the case studies contribute to the debates on regional determinism versus territorial autonomy?

This report is the result of the first phase of the research process in both participating countries. It provides a contextual background in which the economic transformation paths of the towns under study took place (Research question 1). The report first provides a systematic overview of the general national characteristics of the two participating countries, such as political structure, territorial division, main actors of economic development, urbanization processes and regional development. In addition, it looks at the processes of industrialization, the main economic shocks and the industrial structure in each of the two countries. The report also looks at national political economies, based on the theoretical concept of Varieties of Capitalism. It positions both countries on the spectrum between coordinated market economy and liberal market economy in terms of the institutional drivers of the functioning of national political and economic systems.

After the general overview of both countries, the report focuses on the individual case study towns. Each case study town is described within its respective regional institutional context, local characteristics, and specificities (regional profile). The theoretical basis of the regional aspect is the Regional Innovation System concept, which explains how actors at the national, regional and local levels support the local economies, their innovative capacities,

competitiveness and resilience. The local perspective of the case study towns is presented from two different perspectives. The first perspective highlights the evolution of local industry in the case study towns. It presents the main economic shocks that undermined the foundations of local economies and the institutional responses to them. The second perspective highlights place-specific elements of industrial culture as the hidden drivers that have both positive and negative effects on the industrial development of the towns.

Methodological perspective

In this report, we compare six towns from Switzerland and Slovenia. These two countries are characterized by similar polycentric territorial development and a strong sense of localism and local autonomy. However, the socio-political contexts in these two countries differ significantly. Switzerland is known as a country with a long-standing, stable and highly developed democracy and hybrid liberal and coordinated market economies. Slovenia, on the other hand, is known as a country with a young democracy and a post-transitional economy. With the declaration of independence in 1991, Slovenia adopted the mechanisms of coordinated market economy, similar to the Austrian and German models. Therefore, we expect to better understand how the embeddedness of towns in different regional, national and global structures and different individual, place-specific aspects influence their transformation paths. The findings should make an important contribution to discourse about what is more conducive to the town's development: the local agencies/ policies / assets (territorial autonomy), or the town's embeddedness in regional and national policies (regional determinism). Understanding and operationalizing the concept of industrial culture, which is part of the local asset-base, is crucial here. The research is based on case study analysis. We selected six small industrial towns that have undergone different transformation paths. We distinguish between neo-industrial and post-industrial towns, as well as between towns with a high and low degree of transformation.

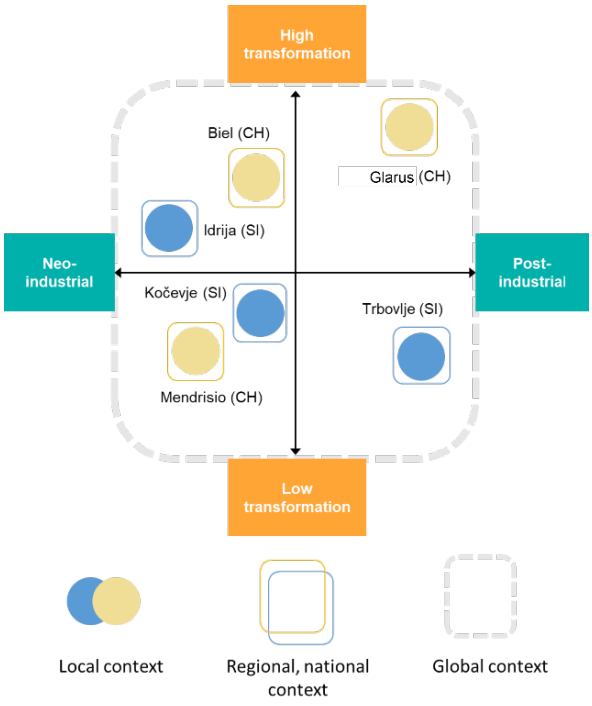

Figure 1. The case study towns in Slovenia and Switzerland. Source: Project proposal.

- Neo-industrial and highly transformed towns (towns that have undergone re-industrialisation and new types of industries: Idrija-SI, Biel/Bienne-CH).
- Neo-industrial and towns with low transformation (towns with traditional industries and no re-industrialisation: Kočevje-SI, Mendrisio-CH).
- Post-industrial towns with strong transformation (towns, transformed into other industries or residential towns: Glarus-CH).
- Post-industrial towns with low transformation (towns without new activities and without tertiarisation effect: Trbovlje-SI).

This report provides a contextual background for the further in-depth narrative analysis and participatory action research that will follow as the project continues. The report offers insights into a variety of different transformation trajectories of the case study towns, as consequences of different shocks and responses to them. For this report, we have collected socio-economic data on employment (national, regional, sectoral, etc.), population, innovation capacity, etc. We also examined national and regional literature and other available secondary data (newspaper articles, policy interventions, etc.).

Cross-country and cross-case comparison: Key findings

The research has shown that SMSTs in Slovenia and Switzerland are embedded in a very different contextual background. Switzerland is a country with a well-established democratic tradition, with direct democracy being a unique feature of Swiss political culture. Switzerland is a markedly decentralised country, administratively divided into 26 cantons. These function as semi-sovereign states with a high degree of fiscal and regulatory powers in areas such as economic development, education, health, culture, etc. Switzerland is a highly urbanized country with relatively low disparities in regional development. Its economic success stems from strategic economic policies as well as from its advantageous central location within European most developed industrial regions, often referred to as the “Blue banana.” The Swiss economy is facilitated by strategic federal and cantonal industrial policies, political stability and production of high-quality goods and specialties. With selective protectionism, weak trade unions and strong ties between economy and tertiary education, Switzerland has characteristics of both coordinated and liberal market economies.

Slovenia, on the other hand, is a relatively young country. It proclaimed its sovereignty and independence in 1991, leaving the Socialist Federal Republic of Yugoslavia. Slovenia has a two-tier system of government and is administratively divided into 212 municipalities. There are also 12 statistical and development regions, but they have no regulatory powers. Slovenia was founded on democratic principles and began building an environment suitable for a market economy. However, the socialist history and transition have influenced the way the state and economy function today. Unlike Switzerland, Slovenia is one of the least urbanised countries in the EU, due to past policies of polycentric development that favoured small towns. Similarly to the Swiss economy, the Slovenian economy is export-oriented. With a relatively balanced market and social protection, Slovenia belongs to the group of countries with a coordinated market economy. This is also a consequence of the transition, which was based on low levels of foreign investment, slow privatisation, and a relatively generous social system. Although their role in Slovenian economy has diminished, trade unions still have relatively strong bargaining and mobilisation power.

Although the national and regional contexts of Switzerland and Slovenia differ, the six case study towns show that SMSTs are important building blocks of national economies. Their role in the local contexts is similar in many ways. Idrija and Biel/Bienne, representing highly transformed neo-industrial towns have both successfully coped with shocks that have affected their economies. In both towns, traditional industries—mercury mining in Idrija and watchmaking in Biel/Bienne—have survived well and form an important segment of the local economy. Both traditions have been included in the UNESCO World Heritage List and are thus an important part of economic diversification, including today's tourism offer. The watchmaking industry in Biel/Bienne gradually developed and fostered the development of related and other modern high-tech industries such as precision mechanics, medical and biotechnology. The town successfully weathered shocks, for example the oil and so-called quartz crisis in the 1970s and the recession in the 1990s. The successful transformation of the local economy has been aided by federal financial injections into the R&D sector and economic diversification.

On the other hand, the legacy of mercury mining in Idrija is today the flagship of Idrija's tourism offer, while the economy restructured before and after the mine's closure in the 1960s. Idrija has always had an international reputation, strong economic connections all over the world and attracted world-renowned experts and scientists. Similar to Biel/Bienne, the economic restructuring in Idrija was strongly supported by the state. However, unlike in Biel/Bienne, where industry and education are more closely linked, companies in Idrija have also focused on outsourcing knowledge. What both towns have in common are pronounced actor-centred processes. In both cases, mayors and representatives of the local business community recognised the urgency of embarking on the path of transformation. They were able to articulate the needs of the business community to initiate institutional change and knowledge provision (whether to create new knowledge or outsource knowledge). Today, both towns are home to world-renowned brands such as Omega, Swatch and Rolex in Biel/Bienne and Kolektor and Hidria in Idrija.

Glarus, an example of a highly transformed post-industrial town, differs from Biel/Bienne and Idrija in the sense that it embarked on a transformation path away from industry and towards tertiarisation. Glarus responded to the shocks, i.e. the oil crisis of the 1970s, by transforming itself into a service-oriented centre. Due to its relative proximity to Zurich and good transport links, Glarus also developed a residential economy.

Similar local actor-centred processes were also found in Kočevje, a representative of a neo-industrial town with low transformation. Kočevje has had a turbulent history, strongly influenced by political decisions, especially during the World War II. The town was subject to strong politically motivated migration processes, which undoubtedly affected the continuity of the local community's industrial culture. The town underwent socialist industrialisation despite the coal mine clusure in 1960s. Severe industrial decline followed after 1990s, which was reflected in high unemployment and daily migration to other centres, especially Ljubljana. After a long-term economic stagnation, Kočevje has just recently embarked on the path of industrial transformation. Cooperation with neighbouring municipalities has led to the formation of an informal, interest-based development region with its own agency. Local authorities in Kočevje facilitated the initiation of the transformation process by attracting new investments, e.g. from Yaskawa and national investments in the existing wood processing, chemical and textile

industries. The local business community and authorities also established cooperation with educational institutions to train and provide workers suitable for the local industry's needs.

Towns with low transformation are particularly interesting to observe because they are still determining their future transformation paths. The three towns with low transformation – Kočevje as an example of a neo-industrial town and Trbovlje and Mendrisio as examples of post-industrial towns – share several common features. All three towns are relatively geographically isolated from larger urban centres and have a strong migration background. Mendrisio is strongly linked to Italy and was isolated from Switzerland until the construction of the Gotthard tunnel in 1882. Cross-border migrants and the Italian fashion industry have strongly influenced the economy of Mendrisio. The textile industry and related labour-intensive industries shaped the local economy until the crisis of the 1980s. It did not affect Mendrisio in terms of higher unemployment rates, as workers from Italy bore the cost of the crisis. Mendrisio responded to the crisis by attracting multinational fashion companies, transforming the town from an industrial to a post-industrial, service-oriented town. While still important, the relative share of the industrial sector declined. The negative externalities brought by the industrial and service sectors such as cross-border commuters and pollution are sources of worries among inhabitants and high on the political agenda.

Trbovlje, the Slovenian counterpart of the low-transformation neo-industrial town is also characterised by industrialization, which began in the 19th century after the construction of the railway. Mining and other labour-intensive heavy industries determined the economic development of Trbovlje. During the transition to a market economy after 1991, industry in Trbovlje gradually declined. The process of deindustrialisation continued after the political decision to close the thermal power plant and the mine in Trbovlje. Recently, also due to pressure from local environmental initiatives, one of the last remnants of Trbovlje industrial image, the cement plant, was closed down. Unlike Mendrisio, the local community in Trbovlje clearly felt the consequences of industrial decline. It was reflected in the high unemployment rate, emigration of young people and the daily migration to work, especially to Ljubljana. Despite the almost complete extinction of the old heavy industry, there are some promising developments in Trbovlje that point to a shift to an environmentally conscious, high technological and high value-added industry, such as Dewesoft with Katapult acentre for promoting and developing new innovative products.

An outlook on future research

The research revealed different patterns in the transformation paths of the case study towns. We elaborated the context of their economic transformation paths and identified potential key actors in this development process. These form the regional innovation systems in which our case towns are embedded. To better understand the formal institutional, actor-centred, cultural/cognitive and other mechanisms behind the towns' transformations, a deep analysis is needed. In particular, we are interested in answering the question of how economic and non-economic actors at different levels (local, regional, national and global) responded to the shocks or even initiated and facilitated the new transformation paths. We also want to find out how the local development paths are linked to broader societal changes in local communities, e.g. changes in norms and values that might influence industrial and technological development. Our further research will rely on a qualitative approach - interviews with relevant

actors, some of whom have already been identified in regional innovation systems. Our aim is to better understand the influence of local assets and local agency as well as exogenous impulses (such as global economic trends, institutional support, foreign investment and national financial aids) on local transformation paths. Special attention will be paid to the innovative industrial and environmental initiatives in Mendrisio and Trbovlje, which could provide evidence-based measures for policy makers. This combination of evidence can better inform the discourse on regional determinism and local autonomy.

Another research perspective is to deepen our understanding of how local communities perceive industrial culture as a viable component of the towns' development. We are particularly interested in answering the question of how the wider local communities responded to and/or initiated the socio-economic transformation of the case study towns. In addition, we will also be interested in industrial culture - how it is reproduced and transformed by local communities and how (and if) it influences agentic change. This aspect will also be explored qualitatively, with interviews and with participatory action research in the form of workshops with stakeholders. We will not only explore the economic relations, but also the broader social relations in the case study towns. Stakeholders involved in the research include representatives from business, academia, government, civil society, culture, etc. These findings may have important implications for deepening the understanding of the concepts of industrial culture and slow innovation and their role in the transformation of towns.

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1 Introduction

1.1 Project overview and report structure

Abstract.

This report constitutes the first outcome of the international research project on the development of industrial towns in Switzerland and Slovenia. The project is titled “Places that don’t matter? Socio-economic transformation of industrial towns in Switzerland and Slovenia” and it is financially supported by the Swiss National Science Foundation (SNF) (grant number 192764) and the Slovenian Research Agency (ARRS) (grant number N6-0157). The project is a 36-month research project running from November 2020 to November 2023 and it is conducted jointly between Prof. Dr. Heike Mayer at the Institute of Geography and Center for Regional Economic Development at the University of Bern, Switzerland, and Dr. David Bole at the Research Centre of the Slovenian Academy of Sciences and Arts, Anton Melik Geographical Institute, Ljubljana, Slovenia.

The primary motivation of the research project is to explore socio-economic transformation processes in small and medium-sized towns (SMSTs) that are specializing in specific industries. The industrial sector accounts for a large share of employment in SMSTs (see Hamdouch et al., 2017). The academic literature tends, however, to focus on industrial transformation in well-performing regions and large urban centres; making policy recommendations derived from such “best-practice models” ill-adapted to SMSTs’ contexts (see Florida et al., 2017; Miörner & Trippl, 2019). Researchers are increasingly interested in SMSTs to provide policymakers with contextualised place-based policies (see Servillo et al., 2014). Additional research must be conducted to understand how industrial and socio-institutional transformation plays out in SMSTs. Using a comparative approach, we examine socio-economic transformation in six industrial towns in Switzerland and Slovenia. The research methodology is based on in-depth comparative case-study approaches and participatory workshops to identify the processes behind socio-economic transformation in SMSTs. The research project will attempt to provide an explanation to favour community-level responses when tackling socio-economic transformation and mitigate increasing populist resentment from citizens in SMSTs who “feel that they don’t matter” compared with citizens in large urban centres (Rodríguez-Pose, 2018).

This report lays the foundation to further explore—in a cross-country, -region, and -town comparison—industrial and socio-economic transformations. The target audience for this report is constituted of researchers and policymakers who aim to better understand the national, regional, and local institutional contexts related to the six case-study towns. The report is structured as followed: the first chapter gives an overview of the research context, the main research objectives, and the adopted theoretical concepts. Chapters 2 and 3 give an overview of the national institutional contexts in Switzerland and Slovenia. Chapters 4 and 5 give an overview of the regional and local institutional contexts of the six case-study towns. The chapters are divided into four parts exploring, (1) the regional institutional contexts, (2) the

Regional Innovation System (RIS), (3) industrial development and shocks, and (4) and industrial culture.

1.2 Theoretical background

Examining industrial towns across different national contexts requires going beyond meso-level theories and adopting a theoretical perspective that allows us to take the diversity of national as well as regional economic systems into account. Thus, in the following we outline the literature related to the Varieties of Capitalism (VoC) approach (Hall & Soskice, 2001) and the three pillars of institutions (Scott, 2013) to explore the national institutional context. To explore the regional and local context, we utlilize the literature on the concepts of Regional Innovation Systems (RIS) (Asheim, Isaksen, & Trippl, 2019) and industrial culture (Görmar et al., 2018).

1.2.1 Varieties of Capitalism (VoC)

Hall and Soskice (2001) provide a conceptual framework for understanding the diversity of economic systems, building on organization and relational theories. “Varieties of capitalism” (VoC) as a concept explores variations in economic outcomes and the related spheres of policymaking, such as macroeconomic policy, social policy, vocational training and inter-firm collaboration. VoC both positions countries on a spectrum between liberal market economies (LME) and coordinated market economies (CME) and explores the regulative, normative and cultural-cognitive institutional drivers that guide, facilitate and constrain behaviour of organizations and firms. Scott (2013) defines these three forms of institutional drivers as the “three pillars of institutions.” Regulative institutions represent laws, agreements, and rules that regularize behaviour and advance the interests of entities. Normative institutions correspond to values and norms that define the appropriateness of functioning and thus shape routines, procedures, conventions, and strategies of actors. The third pillar, the cultural-cognitive aspect of institutions, represents shared conceptions and ideologies that structure organization fields and define the preferred political and economic systems (Scott, 2013, p. 59–70). Institutions as legal, moral and cultural boundaries of social action are shaped and reproduced through historical experience, relationships, policymaking and functioning of the system in general (Hall & Soskice, 2001; Scott, 2013, p. 58).

1.2.2 Regional Innovation Systems (RIS)

The concept of RIS consists of three core elements: actors, networks, and institutions (Asheim, Isaksen, & Trippl, 2019). An innovation system perspective puts emphasis on systemic interdependencies between these elements. Typical RIS actors are the firms and industries located in a particular region as well as organisations that make up the knowledge and support infrastructures, policy actors, non-governmental actors (NGOs), and other innovation actors. These actors are anchored around five fundamental activities: R&D, implementation, end-use, education, and linkage (Asheim, Isaksen, & Trippl, 2019; Liu & White, 2001). Primary actors

are the organisations that perform one or more of the five listed activities (Liu & White, 2001). Secondary actors are organizations that affect the behaviours or the interactions between primary actors.

1.2.3 Industrial Culture

Industrial culture is defined as a dynamic phenomenon in which past and present industrial production is embedded in the human physical environment, social structures, cognitive abilities, and institutions that may influence the future development choices of (post)industrial communities. The concept provides an analytical lens to understand spatial and historical industrial trajectories and patterns. It compiles a set of tangible and intangible assets that forms a way of life and class consciousness (Byrne, 2002; Harfst et al., 2018). Görmar et al. (2018, p. 58) state that "[…] utilising Industrial Culture holds the potential to unlock new development options and strengthen the connection of the people to places," They operationalize this by looking at three spheres: industrial production (production patterns), tangible (relicts, buildings and landscapes) and intangible elements (expertise, attitudes, traditions and values). Industrial culture is considered to be a part of the local or regional asset base (Bole, 2021). Examining industrial culture can thus expose underlying mechanisms that influence the development paths of past and present industrial communities.

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2 Slovenia: Institutional context

2.1 Country overview

Figure 2. Case Study Towns: Idrija, Kočevje, Trbovlje. Source: the authors.

Slovenia is a small country of 20,271 km^2 (approximately half of Switzerland) with a population of just above 2 million. It gained independence in 1991, making it one of the youngest sovereign countries in Europe and the world. Located at the intersection of European macro regions with mountain (Alps, Dinaric Alps), continental (Panonian Basin) and coastal/maritime (Adriatic Sea) landscape types, it has one of the highest average landscape diversitiesLocated (Perko et al., 2020). Biogeographically, it is either categorised as a Mediterranean country according to landscape classifications, or as an Alpine country since the bulk of its territory is covered by the Alpine convention. It is one of the most forested countries in Europe with a 62% share (Gabrovec et al., 2020). Geopolitically, it can be considered a Central-East or a Central European country (Bufon, 2003). It is thus located at a geographical, historical and political intersection of Europe, which is reflected through popular tourist slogans, such as “Slovenia – all of Europe in one place”. Due to its diversity, it is an attractive tourist destination with 6.22 million tourists’ arrivals in 2019 (Slovenian Tourist Board, 2021).

Figure 3. Map of Slovenia.

In terms of development, Slovenia has long been considered one of the most developed post-socialist countries, mainly due to economic ties with Western Europe that existed even during socialist times (Nared et al., 2020). Slovenia has a higher Human Development Index (HDI) than neighbouring countries such as Italy (0.892), Croatia (0.851) and Hungary (0.854) but slightly trails Austria (HDI SLO: 0.917; HDI AUT: 0.922). It is has particularly low inequality (as measured by distribution of health, education and income), since it is 9th in the World, behind only Nordic countries, Switzerland, Ireland and the Netherlands (UNDP, 2021). This is the consequence of embedded egalitarian societal values that stem from religious and rural traditions (Bole et al., 2020b). According to the nominal GDP per capita, Slovenia has the highest value of all post-socialist countries (25,700 USD), but is still below the EU average (World Bank, 2021).

Although only 5% of people work in agriculture, approximately 50% live in rural areas, making it one of the least urbanised countries in Europe (Bole et. al., 2020a). The population grew rapidly in the 1960s, when industrialisation and later tertiarisation drove an increase in the immigration of workers from Yugoslavia that continued to a lesser degree through the 1990s. Nevertheless, Slovenia is ethnically quite homogenous, with 83% declared as Slovenes, 1% as ethnic minorities (Hungarians and Italians) and less than 8% as ex-Yugoslav immigrants (Serb, Bosnian, Croatian, Macedonian, Montenegrin) (Kladnik et al., 2020). The population is

aging rapidly with worrisome demographic trends: slight increase of the total population is only due to positive immigration balance, while natural increase is negative (Zaletel et al, 2021).

Slovenia is also very homogeneous in terms of religion and socioeconomic distribution. 57% of the population identify as Catholic, 10% as atheist, and 3% as another religion. The population is highly dispersed across the country with a very “rural” settlement structure. This is due to historical reasons, primarily a longstanding spatial policy emphasizing polycentrism which results in a dispersed settlement system, the absence of large and medium sized towns, and small-scale suburbanisation of the countryside (Bole et al., 2020a). According to the OECD typology, 50% of people live in a rural environment, making it the third most rural country in Europe, just after Ireland and Lithuania (OECD, 2011a).

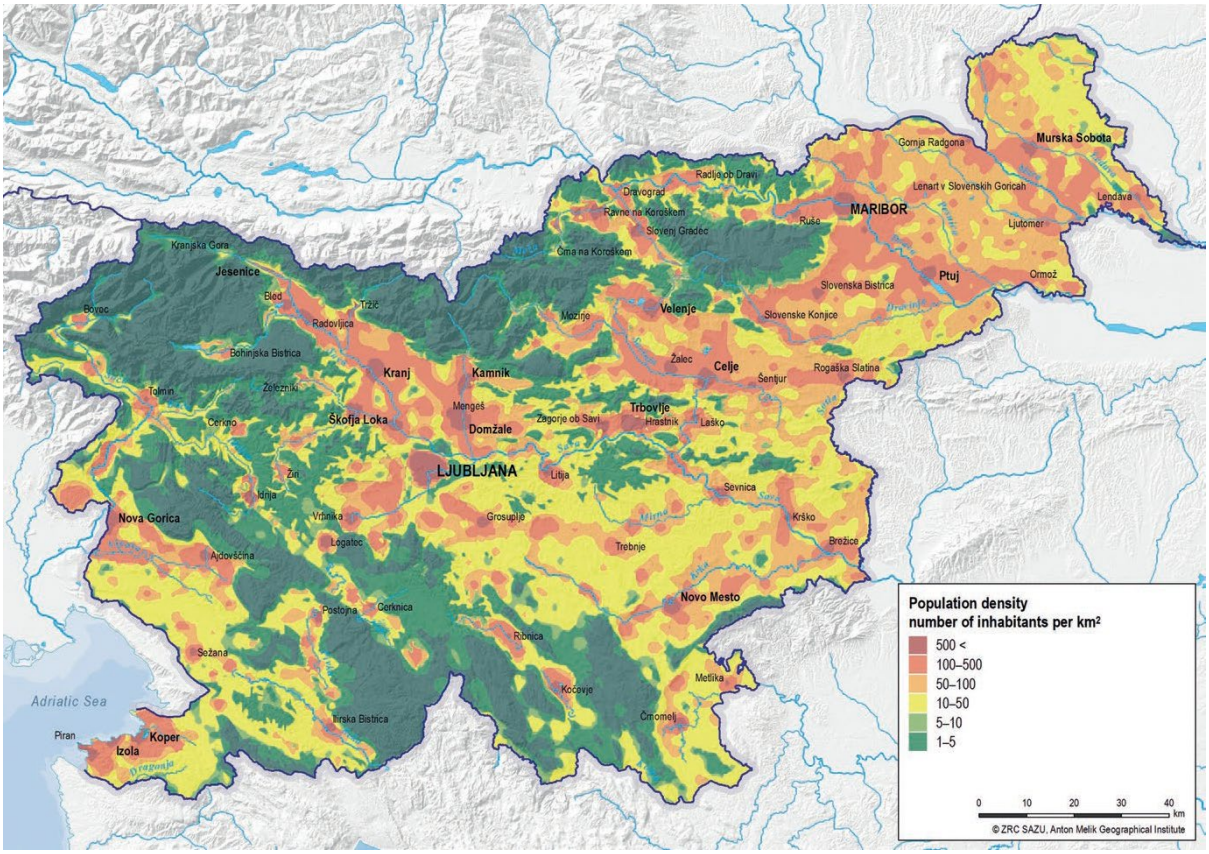

Figure 4. Population Density. Source : Kladnik et. al. (2020).

2.2 Slovenia: Key indicators

Type	Indicators	old (year)	recent (year)	Data
Structural	GDP	21'851 Mio Euros (2000)	48'393 Mio Euros (2019)	Link
	GDP (growth in decades)	78.2% (1995-2005)	33.4 (2009-2019)	Link
	GDP per capita (growth in decade)	77.1% (1995-2005)	30.4% (2009-2019)	Link
	Gini coefficient (equalised disposable income)	23.2 (2007)	23.9 (2019)	Link
	Price level index (EU27_2020=100, Eurostat, actual individual consumption)	74.2 (2000)	86.5 (2019)	Link
	Imports & exports (growth in decades)	Imports: N.A. Exports: N.A. (1995–2005)	Imports: 79.9% Exports: 95.2% (2009–2019)	Link
Structural / industry	Industry (including construction) value added in GDP (%)	30.4% (2000)	28.9% (2019)	Link
	The share of manufacturing exports in the merchandise exports of the country (%)	89.7 % (2000)	84.4% (2019)	Link
	Value added per worker in industry (including construction)	29,417 USD (2000)	46,827 USD (2019)	Link
	Medium and high tech industry (including construction) value added in manufacturing (%)	36.6% (2000)	47.7% (2019)	Link
	Medium and high tech industry exports (% of all manufactured exports)	54.3% (2000)	63.7% (2019)	Link
	Gross capital investments in industry (including construction) according to current prices	1,701 mio € (2000)	3,308 mio € (2019)	Link
Employment	Sectoral[1] workforce (workers)	primary: 8.3% secondary: 31.1% tertiary: 60.6% (2010)	primary: 6.9% secondary: 30.0% tertiary: 63.1% (2020)	Link
	Unemployment (active population, %)	7.3% (2010)	4.5% (2019)	Link
Demography	Population	1,987,755(2000)	2,080,908 (2019)	Link
	Population (growth in decades)	-0.43% (1990-2000)	2.39% (2009-2019)	Link

[1] according to NACE r2 sectors: primary (A), secondary (B-F), tertiary (G-U)

	Ageing (0-19, 20-64, 65-)	0-14: 16.1% 15-64: 70.0% 65+: 13.9% (2000)	0-14: 15.1% 15-64: 65.1% 65+: 19.8% (2019)	Link
	Emigration / Immigration	Immigration: 15,416 Emigration: 15,937 (2010)	Immigration: 31,319 Emigration: 15,106 (2019)	Link1 Link 2
Spatial development	Urbanisation rate	50.8% (2000)	55.1% (2020)	Link
	Urban sprawl (weighted urban proliferation WUP)	ca. 1.6 UPU/m^2 (2006)	ca. 1.7 UPU/m^2 (2009)	Link
	Land cover / use	Artificial Surfaces: 3.4% Agricultural areas: 34.3% Forest and seminatural areas: 61.7% Wetlands: 0.2% Water bodies: 0.4% (2000)	Artificial Surfaces: 3.5% Agricultural areas: 34.3% Forest and seminatural areas: 61.6% Wetlands: 0.2% Water bodies: 0.4% (2018)	Link
	Ecological footprint per person	4.75 (2000)	4.90 (2017)	Link
Politics	Strength of political parties (>5%)	LDS: 36.3% SDS: 15.8% ZLSD: 12.1% SLS+SKD: 9.5% NSi: 8.7% DeSUS: 5.2% (2000)	SDS: 24.9% LMŠ: 12.6% SD: 10.0% SMC: 9.8% L: 9.3% NSi: 7.2% SAB: 5.1% (2018)	Link
	Democracy index	79.60 (2006)	75.00 (2017)	Link Link
	Share of vote for far-right parties (Classification)	0% (2000)	29.1% (2018)	Link
	Share of vote for far-left parties (Classification)	0% (2000)	9.3% (2018)	Link
	Share of populist parties (Classification)	20.2% (2000)	51.6% (2018)	Link

Table 1. Slovenia Key Indicators Sources: datafootprintntework, European Environment Agency, Eurostat, State Election Commission, Statistični urad Republike Slovenije, The World Bank.

2.3 Slovenia context

2.3.1 Historical background

The Slavs settled the area from the 6th century on, which shapes today's ethnic character with 83% of people declaring as ethnic Slovenes. Slovenian territory became part of the Frankish Kingdom in the 9th century and later of the Holy Roman Empire with the Habsburgs ruling as provincial princes from the end of the 13th century onwards. Historically, Slovenian territory was divided into four provinces (Carinthia, Carniola - with Windic March and Istria, Styria and Gorizia), changing rulers up to 1918, when the Habsburg Empire collapsed. The key events establishing Slovenian identity were the Reformation that developed the standard of the Slovenian language and Theresian and Josephine reforms of Habsburg lands, which began nationalist movements. One of the most important events was the establishment of Illyrian provinces under Napoleon (1809-1813), where Ljubljana became the capital and one of the most important cities in the Balkans. In early 18th century, the clashes between Slovenians (traditionally rural) and ethnic Germans (traditionally urban) became more prominent and caused a growing political divide between clerical and liberal factions. The end of the World War I meant the final abolition of the Habsburg empire and the establishment of the Kingdom of Serbs, Croats and Slovenes, and later the Kingdom of Yugoslavia, but with a large displacement of ethnic Slovenians in Austria, Hungary and Italy. During the World War II, the territory was divided by axis powers with the nation affected by ethnocide and fratricidal war. The Communist party was installed and ruled until 1990, when the first democratic multiparty election was held, followed by a referendum of independence and declaration of independence in 1991 (Kosi et al., 2020).

2.3.2 Political structure

Slovenia became an independent nation in 1991. It is now a parliamentary republic with a proportional electoral system and a separation of power into legislative, executive and judicial branches. The holder of the legislative branch is the parliament, which consists of the National Assembly and the National Council. Executive power is vested in the government and judicial power is held by the Constitutional Court and the Supreme Court (Government of the Republic of Slovenia, 2021a). Slovenia is characterised by a two-tier government model. The country is divided territorially and institutionally into a national tier and a municipal tier with 212 municipalities that significantly vary in terms of size and economic performance. The majority of national institutions are located in the capital of Ljubljana, with a population of about 300,000 (Nared, 2020). The regional level consists of 12 statistical regions with only nominal power: regions operate through regional councils composed of municipality representatives. This administrative structure has its historical roots in egalitarian and polycentric policies from the post-war socialist period, when territorial 'equality' was a political and ideological goal and the development of small towns was fostered, while regional capitals were neglected (Nared, 2018).

The Slovenian political arena does not differ much from other countries. It is roughly divided into three political orientations: the centrist liberals that had a majority in the years following the independence, the right parties that won the parliament in the recent elections in 2018 and the left that were usually aligned to liberal parties in coalition governments. However, recent Slovenian politics holds certain specifics and is showing signs of political instability, such as transformation of the party system (especially on the left wing), the rise of personalist politics and strong political polarization, as noted in the key indicators table showing a sharp rise in populist and far right/left parties in 2018 elections (Krašovec & Johannsen, 2016). A recent electoral map shows that the left predominated in central, urbanized, coastal and certain (ex)industrial areas, while the right parties have their foothold in more rural and peripheral areas (Figure 5.). This corresponds to a strong rural-urban divide (Tiran, 2015). Voter turnout has been declining (Rogelj & Tiran, 2014) and was only 52.6% at the recent parliamentary election in 2018.

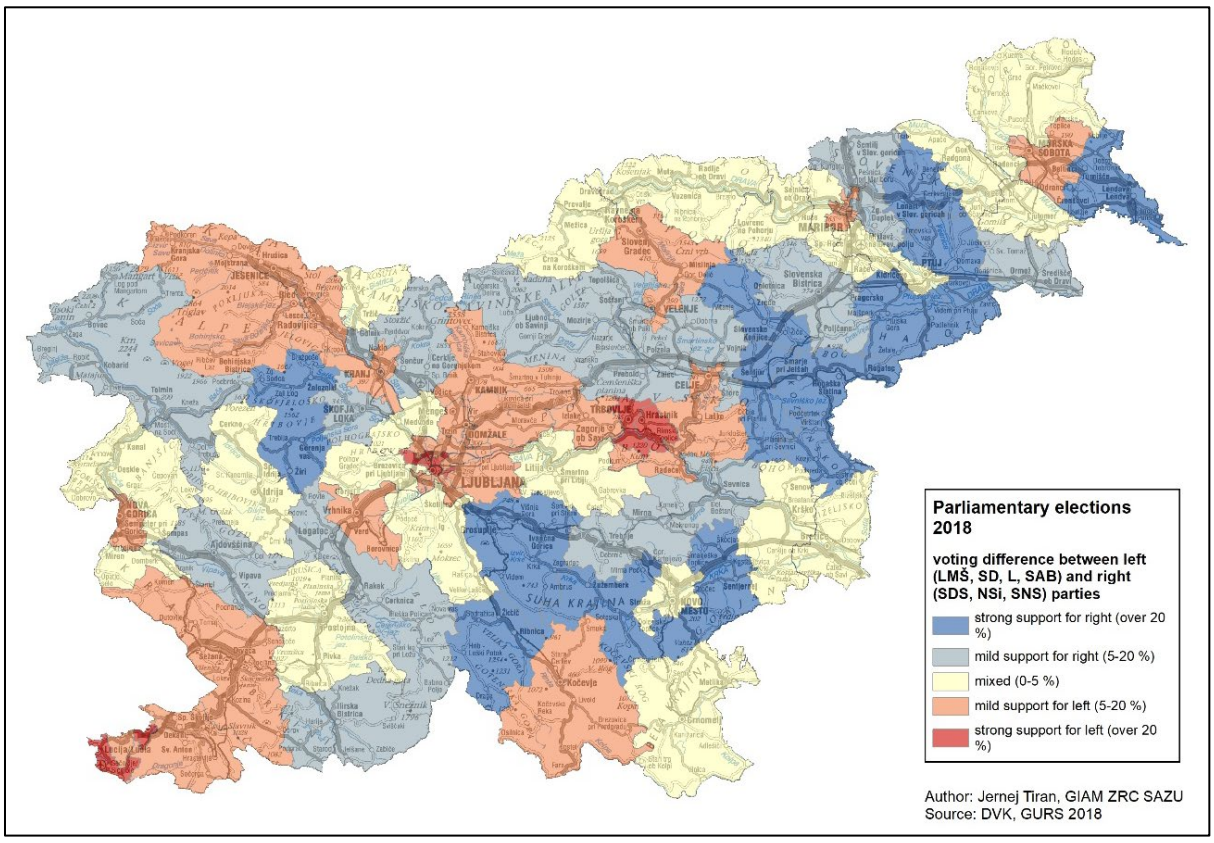

Figure 5. Electoral map of recent parliamentary elections. Source: State Election Commission (2021).

2.3.3 Administrative divisions

Slovenian government is divided into two levels (local and national), plus an intermediate regional level that lacks political power. The local level consists of 212 municipalities, 11 of

them with the status of urban municipalities. Municipalities are equal partners of the State and are governed by three independent bodies – a mayor, a municipal council and a supervisory committee. Mayors and members of the municipal council are elected by the residents in local elections every four years (Government of the Republic of Slovenia, 2021b). Municipalities hold autonomy regarding their spatial and developmental planning and are financed from various revenues – personal tax, property tax, concession fees, other fees, fines, etc. Social housing, primary schools, kindergartens, certain healthcare services and pharmacies are also in the domain of local institutions. The State provides additional funds for the less developed municipalities that cannot fully finance public projects.

Public authority at the regional level is not officially established. The 12 developmental and statistical regions offer informal governance arrangement that also involved municipalities. Various past attempts of formalising public authority at the regional level failed due to disagreements on the territorial scope of regions and the level of regional competence (Nared, 2018). For purposes of the EU cohesion funds, two NUTS 2 cohesion regions were formed (Western and the Eastern); these are not functional regions (Figure 6).

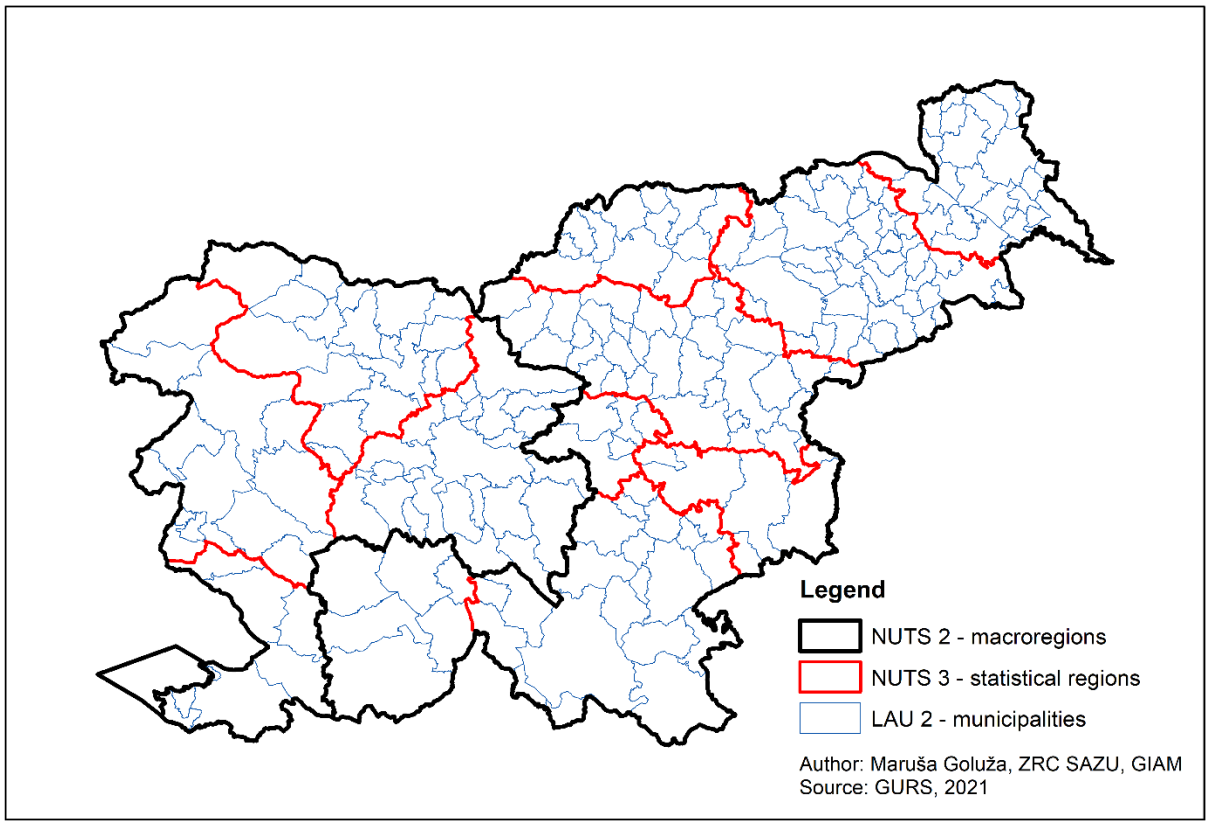

Figure 6. Territorial division of Slovenia.

2.3.4 Economic development actors

The main national actor concerned with economic development is the Ministry of Economic Development and Technology (MGRT), which sets the framework conditions for economic development and provides support to further strengthen national competitiveness. Its key priorities include internationalisation, entrepreneurship, technological development, tourism, the internal market, regional development and the wood industry (MGRT, 2021). Other key national actors include the Slovene Enterprise Fund (providing financing of start-up initiatives, venture capital, micro initiatives), SPIRIT Slovenia – Business Development Agency (a point of contact for potential investors and international companies), Slovene Investment Bank (offering financial instruments), the Chamber of Commerce and Industry of Slovenia (non-profit association of 5200 firms), and the Chamber of Craft and Small Business. The Slovene Enterprise Fund and SPIRIT Slovenia are responsible for the majority of measures regarding promoting innovations and research, including co-financing of EU innovation schemes and products. The S3 document of economic development is the Smart Specialisation Strategy 2014–2020, which outlines three key priority areas for directing investments: a) manufacturing and ICT, b) electrical and electronic component production, c) research on materials (biomaterials, metal alloys …). These areas are in line with the best performing business sectors and the principal scientific specialisations with pharmaceuticals and chemical industry (including smart materials), based on domestic R&D (Komninos et al., 2014). The EU economic policies are very important since they define the activities and the basic legislative framework of above-mentioned institutions and often form the basis for co-funding of various economic initiatives and projects.

2.3.5 Urbanisation

Slovenia is below the European average in terms of urbanisation. 66% of people live in small and medium-sized towns (5,000–50,000 inhabitants), while there are only two large cities: Ljubljana with 290,000 and Maribor with 113,000 inhabitants (SURS, 2021a). The settlement structure is thus quite uneven, with an absence of towns between 50,000 and 100,000 (Bole et al., 2020a). The introduction of a communal system in the 1960s strongly favoured the development of smaller towns, which were seen as an extension of state power and were developed with jobs, public services and financial subsidies (Nared, 2018). This was perceived as a step towards better social and territorial justice and had strong ideological connotations. Around 13–15 regional centres were neglected, especially after the 1990s when a new local self-government reform was adopted. This exacerbated the unevenness of the Slovenian urban system, which is reflected in the lack of regional capitals or medium-sized towns with populations above 60,000, and a strong presence of small towns below 20,000 inhabitants that typically display an “oversupply” of public services and functions in comparison to medium-sized towns (Nared et al., 2017).

As Slovenian settlements underwent small-scale urbanisation, their residents mostly found work in the production and service sectors, and they worked their farmland more in the sense of part-time or hobby farmers. As part-time farms, the households usually earn a major portion of their income from non-agricultural activities (Klemenčič, 2002). A typical character of

Slovenian settlements developed, in which they retain rural features in the physical sense, but resemble urbanised settlements in the social sense. The small-scale urbanisation of the countryside is also a consequence of the fact that Slovenians generally do not like to live in larger towns, even though they depend on them economically (Uršič, 2010). Small-scale suburbanization is a typical process in Slovenia, where even the smallest towns are forming their suburbanised hinterland (Bole et al., 2020a). This process was also significantly contributed to the high volume of Slovenian commuters, who were initially tied to public transport and later on to extensive or above-average use of cars, even in comparison to the European average (Figure 7) (Bole & Gabrovec, 2014). There is some incoming cross-border commuting to industrial centres from Croatia and outgoing daily mobility of Slovenes to Austria (in less developed eastern regions) and Italy.

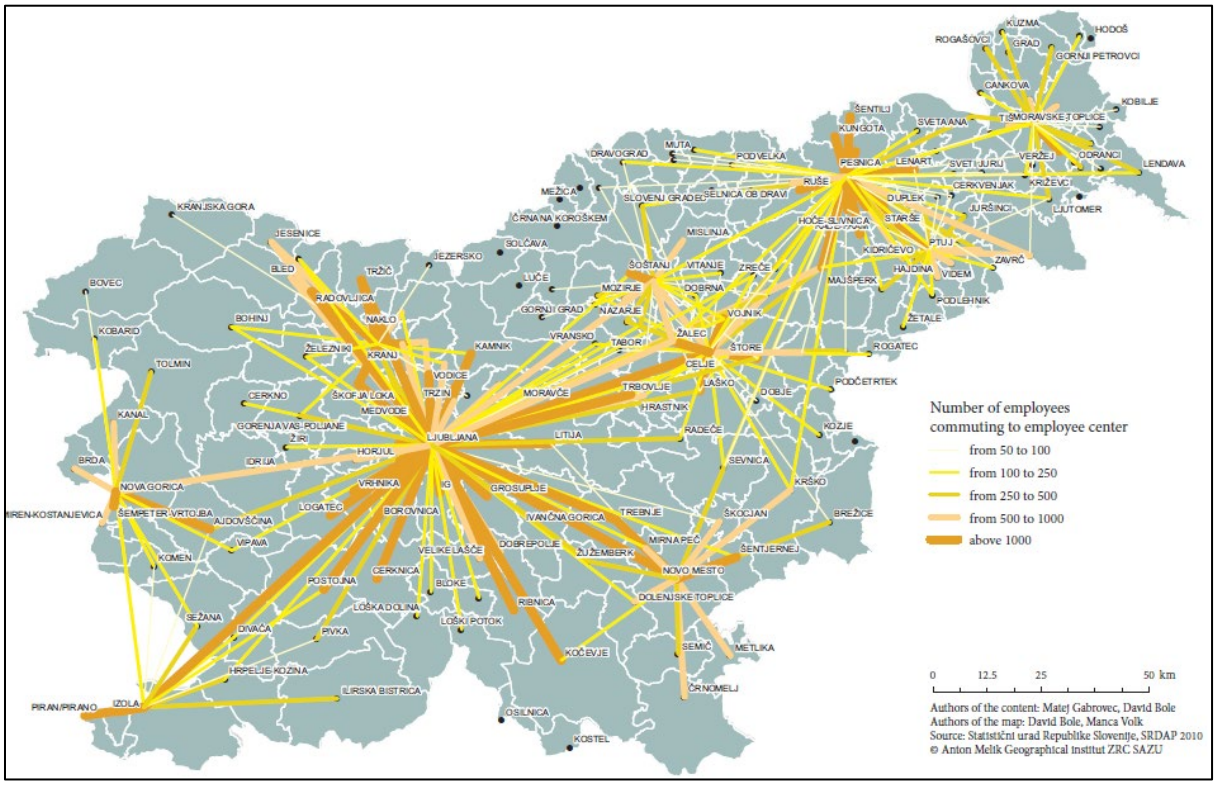

Figure 7. Daily commuting of employees to major employment centres in 2011. Source: Bole and Gabrovec (2012).

2.3.6 Regional development

The absence of the regional level of government causes problems in carrying out tasks of regional importance, such as public transport, waste management, spatial planning, etc. Because the local level of government is dispersed and relatively weak, this stimulates a strong centralisation tendency reflected around the increasing importance of the capital city (Nared, 2020). In regional development there seems to be a divide, with western Slovenia more

developed than eastern Slovenia. The GDP per capita in the capital region is 40% above the national average, while the ex-mining Central Sava region only reaches 52% of the national GDP per capita. Additionally, there is a slight tendency toward divergence in regional GDP, especially after 2015, with sharp rises in the West and lower GDP in the East (UMAR, 2019). This is also reflected in the Development Risk Index (DRI), in which eastern Slovenian regions have substantially higher DRI (Figure 8). The state adopted several policies to counter growing regional developmental disparities, notably the Promotion of Balanced Regional Development Act, adopted in 1999 and revised several times in the following two decades, focusing on endogenous regional potentials and needs expressed in the regional development programmes. However, due to the lack of a regional level of authority, individual municipalities were tasked with approving and executing regional programs, which proved to be problematic (Nared, 2020). EU cohesion policies aim to play a major role in supporting convergence and reduce regional development disparities by co-financing specific regional development projects and local projects in urban and rural communities (SVRK, 2020). The difficulty is that EU cohesion funds are financed in the territorial scope of two administrative regions that are not functional regions.

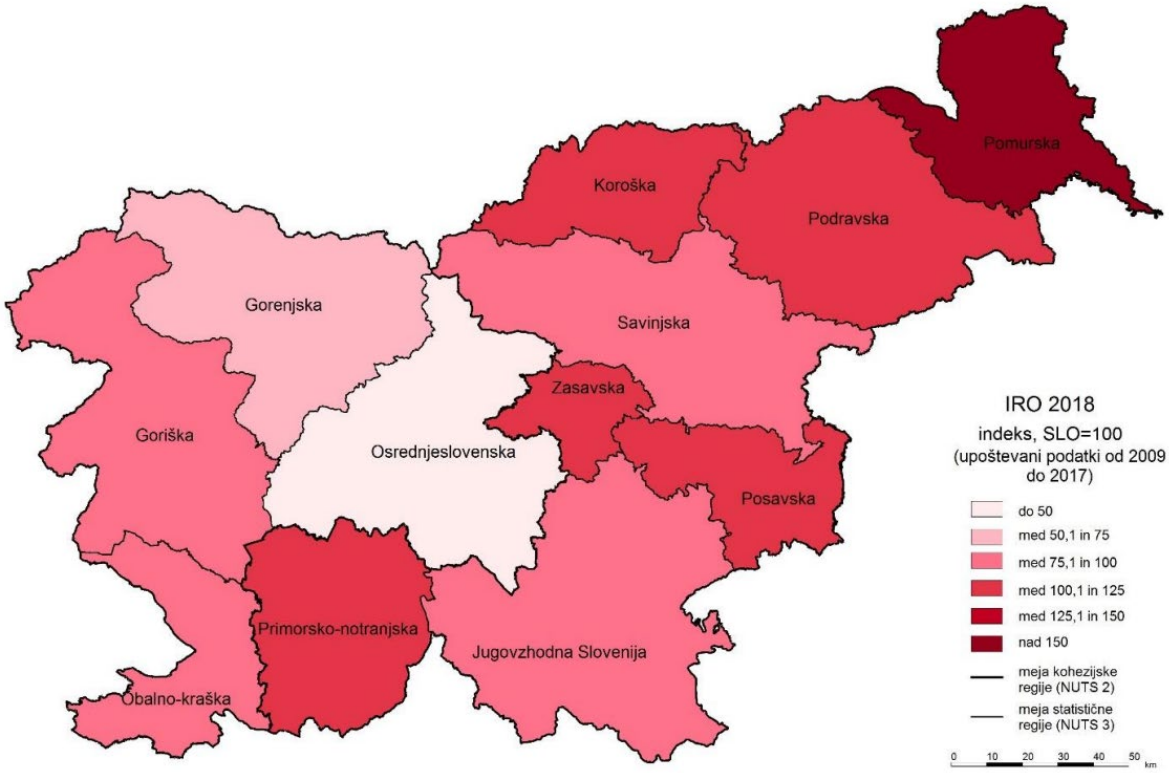

Figure 8. Development risk index for 2018 per statistical regions. Source: Pečar (2018).

2.4 Industrial context

2.4.1 Industrial development in a historical perspective[2]

The Slovenian territory experienced three waves of industrialisation: the first at the transition from the 19th to the 20th century (coal), the second in the 1920s before the world economic crisis (electricity), and the third, especially distinctive one after World War II (mass Fordist production). It was not until the second half of the 19th century that a true industrial revolution occurred, when coal mining and the railroad from Vienna to Trieste enabled goods to be exported. The increasing coal production peaked in 1913. The spatial distribution of industry followed a specific spatial pattern called "the industrial crescent," which was based on the location of coal mines in towns connected by railways. The areas of Slovenia outside of this industrial crescent stayed predominately rural. In comparison to the rest of the Austro-Hungarian Empire, Slovenia was under-industrialised and predominantly rural.

Between the World Wars, Slovenian industry in the Kingdom of Serbs, Croats and Slovenes and from 1929 Kingdom of Yugoslavia experienced a new rise due to new markets and poor industrialisation in other parts of Yugoslavia that continued until the world economic crisis in the 1930s. In addition to coal, electricity became very important, as the first two hydroelectric power plants were established in 1915 and 1918. The number of industrial companies doubled, with particular growth in the period from 1919–1929. The most successful industries were textiles, furniture and lumber, metallurgy, chemicals, paper, and tires. Again, the main concentration of industry was in the traditional industrial crescent, but some regional towns outside of it, namely Novo mesto for instance, also began to industrialize.

After 1945, the new or renovated factories were at first still primarily concentrated in the "industrial crescent." Because the socialist political goal was to spread industrialism and the proletariat across the country, all the regional centres were systematically industrialised. The second wave of industrialisation began in the 1970s when the authorities concluded that the industry was too concentrated in larger towns and they feared uneven development and corresponding social issues. In line with the principles of polycentric development, smaller towns as well as completely rural areas began industrialising with factories, which is still characteristic of Slovenian industrialisation today. Regional centres and older industrial towns experienced stagnation, while a completely new industry began developing in smaller rural towns. This was also the peak of industrialisation, as almost 50% of people were employed in industry in the late 1970s. From this era, the most iconic industrial towns persist and are called "post-socialist champion towns" (Bole et al., 2019). They are more-or-less dependent on the success of a single firm, which managed to transform after the fall of socialism.

With the independence of Slovenia in 1991 and the introduction of a market economy, the majority of industrial companies found themselves in a difficult position due to the loss of a major part of their market in the former Yugoslavia, the restructuring of production, the lack of

[2] Text based on project reports: Bole et al., 2017; Hoekstra, 2017.

investment funds, and privatisation. However, many companies gradually managed to overcome these problems and became globally important. This could be connected to a unique variety of capitalism in Slovenia, which is coordinated and gradualist in terms of transformation from socialist to capitalist system. This prevented the blight of industrial firms that happened in other post-socialist countries and in the long term enabled a smoother transition and transformation of industrial firms.

2.4.2 Economic shocks

One of the first economic shocks happened before World War II in the 1930s, originating from the Great Depression and affecting the Slovenian economy to a great extent (Počivavšek, 2006). A financial and later industrial crisis caused major unemployment, exceeding 20%, particularly in the industrial and retail sector. This economic shock also temporarily halted the rapid economic development of Slovenia, which was by far the most developed part of the former Kingdom of Yugoslavia.

The next shock followed World War II when the political regime, under the influence of Communist ideology, changed the economic orientation and nationalised all major companies. Great investments were made, especially in the industrial sector, to achieve self-sufficiency and to fuel the ideology of proletariat society. The market was oriented towards domestic consumers and other Communist countries, while retaining some links with the West, primarily in the automobile industry. This was the consequence of the rift with the Soviet Union after 1948, where Yugoslavia distanced itself from other Communist regimes (Lorenčič and Prinčič, 2018). Slovenia did not have a capitalist regime, so it was partly shielded from external market shocks in the West. The great economic crisis that peaked in 1975 in Slovenia coincided with efforts to modernise the economy and make certain pro-democratic reforms (Štiblar, 2008). Those reforms were successful at first, bringing new medium-tech industries in smaller towns, but were later quashed when Communist “hardliners” prevailed over Communist factions that were in favour of opening up the economy to the West. The real effects of the economic crisis were less visible, since the Government resorted to borrowing money from the Western countries (Štiblar, 2008).

Another shock was the country’s independence in 1991 and its reorientation to the market economy. This meant the privatisation of major companies and complete restructuring of market orientation, since ex-Yugoslav markets were lost. The most obvious result was deindustrialisation, especially of older industries in regional centres with basic, lower-tech production (consumer goods, food, textile, steel, etc.). Unemployment rates in industry soared, but productivity increased (Bole, 2008). Industrial structural indicators (see Table 1) demonstrate that this shock lasted at least until 1995, followed by rises in industrial productivity and output as Slovenia underwent a transformation of its industry to higher tech production. Unlike in other post-socialist countries, this restructuring was not based on foreign acquisitions, but rather on domestic capital. This prevented certain social shocks that were characteristic of other post socialist countries, and also meant that Slovenia was less affected by subsequent economic shocks in the 1990s and 2000 (Štiblar, 2008). Slovenia has converged to the

average EU income per capita (91 per cent of the EU average in 2008), which was achieved by the EU accession in 2004 and the adoption of the Euro in 2007 (Komninos et al., 2014).

One of the biggest economic shocks for Slovenia was the 2008 financial crisis. From 2008 to 2012, GDP fell by 7%, making it one of the most affected countries (Komninos et al., 2014). The main reason was its economic structure: Slovenia's economy is based on medium-tech export-oriented products, and it is one of the most export-oriented OECD countries (OECD, 2017). When demand from abroad, especially from Germany, diminished, those medium-tech sectors suffered the most. A decline in industrial production and share of GDP is evident (4% drop), with medium and high-tech production also suffering the consequences. Only the pharmaceutical industry prevented further decline, while the automobile, computer, electric and other industries, together with the financial and construction sector made sharp losses (Komninos et al., 2014). This crisis exposed the core problem of the Slovenian economy: it is based on the export of medium-tech products (from 2002–2011, manufacturing contributed almost 30% of GDP and over 80% of exports) and has an underdeveloped knowledge-intensive sector. The GDP did not return to pre-crisis levels until 2017, indicating that the country needed almost a decade to return to its 2008 economic state. The role of industry in national GDP rose from 2010 onwards and was close to its pre-crisis level in 2019.

2.4.3 Slovenia industrial structure

Slovenia is ranked 35th in the world according to the WEF competitiveness index, scoring higher in macroeconomic stability and human capital (health and skills) and lower in market indicators (market size, size of the financial system, etc.) (WEF, 2019). 24.2% of people have a tertiary education (Razpotnik, 2019). The economy is extremely export-oriented, particularly in the manufacturing sector, with 44% of GDP created by export-oriented goods (OECD, 2017). Industry (mining, manufacturing, energy, construction) currently employs 243,000 people, more than 20% of the entire national workforce (see Key indicators). The majority of these work in manufacturing, some in construction and only a small fraction in mining (Bole et. al. 2017). The most important manufacturing sectors for employment are the metal industry, small electric appliances manufacturing and plastic manufacturing, which account for a third of the total industrial workforce. A trade balance shows the importance of machinery, chemical and material production (Figures 9 and 10).

Despite an 8% drop in manufacturing employment from 2000 to 2020, the industrial share in the GDP decreased by only 1.5% in the same period (see Table 1). Combined with other indicators, such as the value added per worker, we can presume that productivity in industrial activities isincreasing. Indicators of medium and high-tech industrial output corroborate this: an increased share in manufacturing exports and share of GDP indicates industrial transformation towards higher value-added activities. Gross capital investments in industrial assets almost doubled in the same period, indicating that industrial production is still a very important part of the country's economy.

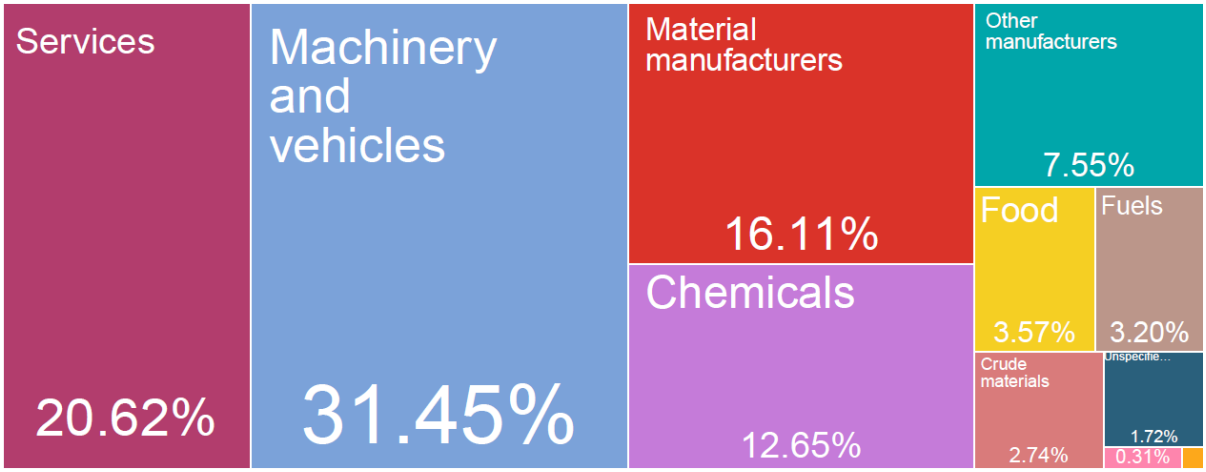

Figure 9. Slovenia's export basket in 2018. Source: Harvard University (2021).

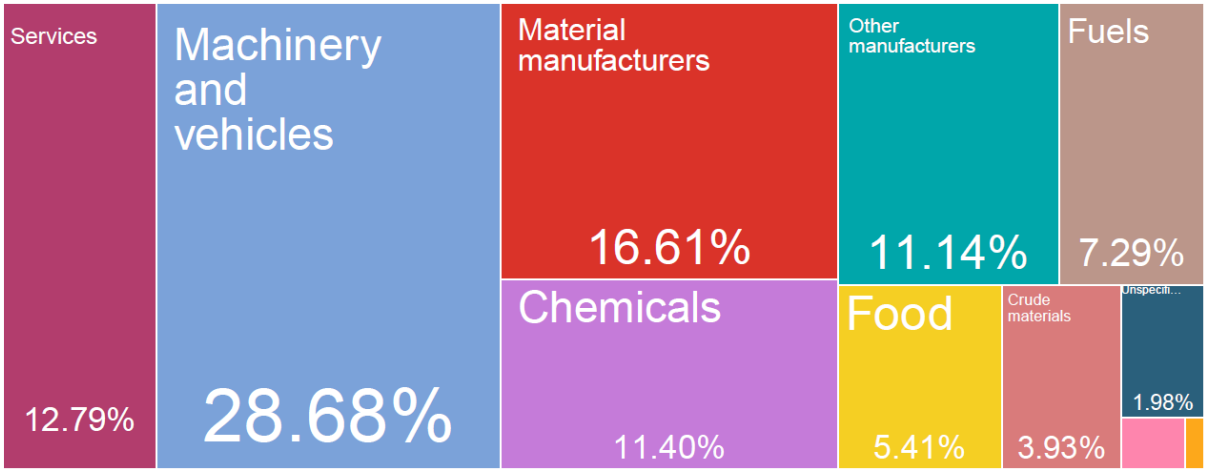

Figure 10. Slovenia's import basket in 2018. Source: Harvard University (2021).

2.5 National political economy

Slovenia is a post-socialist country. Regulatory institutions coordinating industrial relations and relations between employees and employers have retained a relatively strong role during the transition. For this reason, Slovenia has developed into a country with a coordinated market economy (Buchen, 2007; Crowley & Stanojević, 2011). One of the crucial factors that contributed to corporatism even after independence is the specific legacy of Yugoslav self-managed socialism, based on an ideology of egalitarianism (Crowley & Stanojević, 2011). As the most "Western" of the Yugoslav republics in terms of geography, market orientation, trade profile, and standard of living, Slovenia was upon independence an already largely market-oriented economy. Throughout the transition, Slovenia sustained favourable positions in its fiscal and external accounts and was thus less susceptible to IMF pressure. As such, it was able to pursue a gradualist approach to economic transformation, with low level of foreign

investment, slow pace of privatization, and a generous welfare regime (Feldman, 2006; Crowley & Stanojević, 2011). In contrast with many other post-socialist and post-Communist countries, Slovenia is one of the few that is regarded as “neocorporatist”, or a “CME country”. What gives Slovenia a neocorporatist character is its firmly institutionalised balance between markets and social protection. Negotiation between business and labour, as well as coordination among social welfare, industrial, and macroeconomic policies is well-established (Bohle & Greskovits, 2007; Buchen, 2007; Crowley & Stanojević, 2011).

Industrial relations in Slovenia exhibit declining trust in trade unions, but the rights of labour still enjoy a rather high level of legal protection. In socialist times, trade unions were perceived as part of the regime and were not organized at the firm level. The Slovenian successor of the former independent trade unions after 1991 is the “Association of Free Trade Unions.” It functioned as partner in “social dialogue” and as a pressure group representing labour rights during the transition (Centrih, 2014). Membership in the unions dropped sharply from 69% in 1980 to 40% in 2001 and 20% in 2018 (Bucen, 2007; OECD, 2021). Despite a sharp drop in workers’ trust in trade unions, they are still relatively influential interest groups with a high mobilisation capacity (Adam et al., 2009). The normative values of the Association of Free Trade Unions are democracy, solidarity, social justice and dialogue (ZSSS, 2021). Collective agreements between employers and trade unions ensure legal protection of workers’ rights, and cover almost 71% of the entire working population (Adam et al., 2005; OECD, 2021). Other institutions also point to a strong corporatist culture in Slovenia, e.g. the National Council composed of different interest groups, including employers and employees, and the Economic-Social Council as a tripartite body with influence on economic and social policies (Buchen, 2007).

On the firm level, workers’ councils are another important characteristic of the coordinated model. In Slovenia, workers’ councils can be thought of as a legacy of the Yugoslav self-management system. The idea of self-management, which represented worker control over companies, gave greater autonomy to firms and was meant to increase worker involvement in decision-making processes (Buchen, 2007; Centrih, 2014). They were transformed on the example of German “Betriebsräte” in 1993. Today, workers’ councils are very important entities for unions, rooting their power at the firm level. They exist in the majority of firms (Buchen, 2007).

Due to strong state control in the socialist past, ***inter-firm relations*** hardly existed. The most influential independent representative of the todays’ Slovenian private sector is the “Chamber of Commerce and Industry of Slovenia” with 13 regional units. It facilitates networking and provides education and legal advice to companies. The Chamber also represents interests of different industries politically, contributes to the formation of economic system and policies, and participates in economic and social dialogue (GZS, 2021).

In socialism, employment protection was very high, whereas unemployment protection was low. Thus, the task for Slovenian transitional economy was to determine new ***employee relations*** by adjusting labour legislation to market-based rules and to institutionalise a system of unemployment protection. Slovenia had rather high expenditures for unemployment protection mechanisms, which formed a system with a generous replacement rate, relatively high overall expenditures, and a long maximum duration of payments (Buchen, 2007). During

the recovery from the global economic crisis, Slovenia undertook several austerity measures that included cutting social transfers (UMAR, 2015).

The essential challenge for Slovenia as a transitional country has been the privatisation of formerly socially-owned companies. It affected the formation of a new ownership structure and thereby affected ***corporate governance*** (Buchen, 2007). The ruling party after the independence had close ties to the old economic elites. Largely for this reason, the government choose a privatisation strategy that privileged insiders as owners (Feldmann, 2007). During privatisation, vouchers were issued with value equivalent to 40% of GDP. 40% of the capital of a firm had to be transferred to three state-controlled funds, 20% to employees, while for the remaining 40% there were two options: they could be sold either to employees or directly to the public. Direct state influence in the economy remains within the two types of state-run funds (Buchen, 2007). The Slovenian economy centred around a core group of export-oriented companies, where workers cooperated with managers in a form of "competitive solidarity." Employers encouraged development of company-specific skills. In this way, managers and workers in the sector developed a cross-class coalition with a strong influence on laws that constituted Slovenian coordinated model (Crowley & Stanojević, 2009).

The Slovenian education system is organised as a public, government-regulated service. Slovenia has a dual ***vocational training and education system*** of apprenticeships, meaning that apprentices are trained in both firms and vocational schools, thereby acquiring both firm-specific and industry-specific skills. The latter are ensured by a common standardisation and mutual recognition of qualifications. Development of company-specific skills is typical in the large and most advanced Slovenian firms (Crowley & Stanojević, 2011; Knavs & Šlander, 2018).

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3 Switzerland: Institutional context

3.1 Country overview

Figure 11. Switzerland with case-study towns. Source: the authors.

Switzerland is a landlocked and mountainous country located in the central-western part of Europe. It borders Italy, France, Germany, Austria, and Liechtenstein. The country has a total area of 41,285 km^2 that is composed of three well-defined geographical regions, namely the Alps, which accounts for 58% of the country's surface, the central plateau (31%) and the Jura (11%) (Federal Chancellery, 2020). The country is poorly endowed with natural resources, being composed of forests (31.3%), agricultural land (35.9%; of which only 11.8% is arable and permanent cropland), and a large share of unproductive areas (25.3%) (OECD, 2002). Switzerland is endowed, however, with a large water surface (4%) accounting for 6% of Europe's freshwater reserves (EDA, 2021a).

Switzerland ranks among the first countries in the world on many development indicators such as democracy index (see Table 1), human development index (0.955, UNDP, 2021), and press freedom. It is one of the richest countries in the world, with a GDP of CHF 84,518 per capita in 2018 (BFS, 2020a). Thanks to its mountains, lakes, dazzling landscapes, and biodiversity with 45,000 known species and 40 endemic species, Switzerland is an attractive tourist destination with 11.8 million tourists in 2019 (BAFU, 2020).

As of the last census in 2019, there were 8.5 million inhabitants of which 2.7 million have a migration background (BFS, 2021a). Switzerland experienced a baby boom after World War II and the Swiss population grew from 4.3 million in 1945 to 6.3 million in 1970—the highest population growth rate in Western Europe (Head-König, 2012). Immigration from the European Union thanks to Bilaterale I (1999) and Bilaterale II (2004), and from outside the European Union compensate the ageing population and the declining fertility rate that is below replacement levels since the early 1970s (BFS, 2020b; Head-König, 2012).

There are four important territorial divides in Switzerland (OECD, 2011). The contrast between mountain regions and plains, the confessional divide between Catholics and Protestants, the linguistic divide, and the urban-rural divide. The mountain regions cover most of the country but only represent 11% of the population. In contrast, the central plateau represents 30% of the countries area and more than 2/3 of the population (Schweizerische Bundeskanzlei, 2020). Switzerland is multi-confessional: 34.4% are Catholics, 22.5% are Protestants, 5.5% are Muslims and 29.5% have no confession (BFS, 2021a). The population is divided into four language zones: 63 percent of the people speak (Swiss) German, 23 percent French, 8 percent Italian, and 0.5 percent Romansh (Federal Chancellery, 2020). There is an urban-rural divide as 77 percent of the population lives in urban areas and concentrates most of the economic wealth (see Figure 12). This urban agglomeration-rural divide is an increasingly marked contrast, and leads to more political polarisation compared to the other three historical divides (Koseki, 2018).

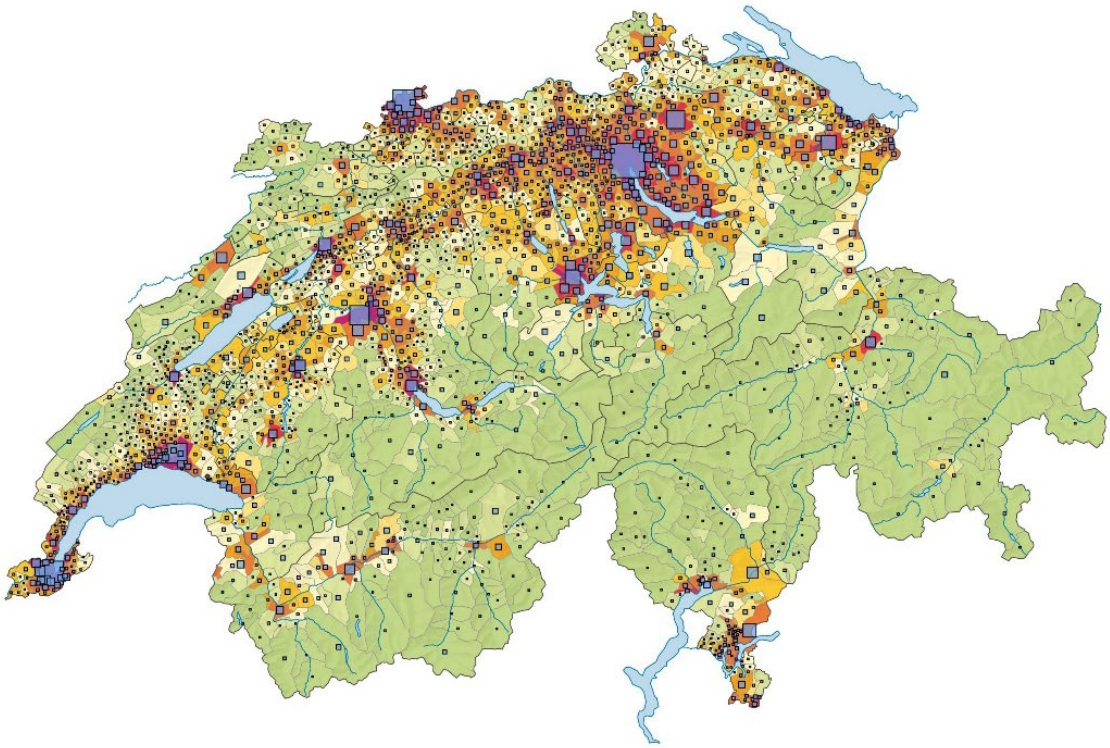

Figure 12. Population density. Source : BFS, 2019a.

3.2 Switzerland: Key indicators

Type	Indicators	old (year)	recent (year)	Data
Structural	GDP	303,732 Mio Euros (2000)	653,512 Mio Euros	Link
	GDP (growth in decades)	25.1% (1995-2005)	62.5% (2009-2019)	Link
	GDP per capita (growth in decade)	18.7% (1995-2005)	47.4% (2009-2019)	Link
	Gini coefficient (equivalised disposable income)	30.4 (2007)	30.6 (2019)	Link
	Price level index (EU27_2020=100, Eurostat, actual individual consumption)	146.4 (2000)	174.4 (2019)	Link
	Imports & exports (growth in decades)	Imports : 63% Exports : 67.6% (1995-2005)	Imports : 74.1% Exports : 86.1% (2009-2019)	Link
Structural / industry	Industry (including construction) value added in GDP (%)	25.4% (2000)	73.8% (2019)	Link
	The share of manufactures exports in the merchandise exports of the country (%)	89 % (2000)	84.4% (2019)	Link
	Value added per worker in industry (including construction)	126,574 USD (2000)	188,355 USD (2019)	Link
	Medium and high-tech industry (including construction) value added in manufacturing (%)	55.6% (2000)	64.6% (2019)	Link
	Medium and high-tech industry exports (% of all manufactured exports)	67.2% (2000)	70.2% (2018)	Link
	Gross capital investments growth in NOGA C	2010: 49.54%; 2011: 24.71%; 2012: 9.57%; 2013: 0.73%; 2014: 7.28%; 2015: -1.65%; 2016: 5.14%; 2017: 8.07%; 2018: 15.17%; 2019: 7.76%; 2020: -12.36%		Direct access via KOF ETH Zürich
Employment	Sectoral workforce (workers)	primary : 3.5% secondary : 22.4% tertiary: 74.1% (2011)	primary : 2.6% secondary : 20.7% tertiary : 76.7% (2020)	Link
	Unemployment (active population, %)	4.8% (2010)	4.4% (2019)	Link
Demography	Population	7,164,444 (2000)	8,544,527 (2019)	Link
	Population (growth in decades)	7.35% (1990-2000)	10.94% (2009-2019)	Link
	Ageing (0-19, 20-64, 65-)	0-14 : 17.4% 15-64 : 67.3% 65+ : 15.3% (2000)	0-14 : 15% 15-64 : 66.5% 65+ : 18.5% (2019)	Link

	Emigration / Immigration	Immigration : 161,778 Emigration : 96,839 (2010)	Immigration : 145,129 Emigration : 126,221 (2019)	Link1 Link 2
Spatial development	Urbanisation rate	73.4% (2000)	73.9% (2020)	Link
	Urban sprawl (weighted urban proliferation WUP)	N/A	ca. 3.5 UPU/m^2 (2009)	Link
	Land cover / use	Artificial Surfaces : 6.5% Agricultural areas : 28.4% Forest and seminatural areas : 61.5% Wetlands : 0.1% Water bodies : 3.5% (2000)	Artificial Surfaces : 6.8% Agricultural areas : 27.4 Forest and seminatural areas : 62.1% Wetlands : 0.1% Water bodies : 3.5% (2018)	Link
	Ecological footprint per person	5.56 (2000)	4.47 (2017)	Link
Politics	Strength of political parties (>5%)	FDP : 19.9% CVP : 15.9% SP : 22.5% SVP : 22.5% GPS : 5% (1999)	FDP : 15.1% CVP : 11.4% SP : 16.8% SVP : 25.6% GPS : 13.2% GLP : 7.8% (2019)	Link
	Democracy index	90.20 (2006)	90.30 (2017)	Link
	Share of vote for far right parties (Classification)	26.1% (1999)	26.7% (2019)	Link
	Share of vote for far left parties (Classification)	1.5% (1999)	1.1% (2019)	Link
	Share of populist parties (Classification)	25.6% (1999)	27.6% (2019)	Link

Table 2. Switzerland Key Indicators. Sources: BFS, Eurostat, datafootprintntework, European Environment Agency, Economist Intelligence Unit, United Nations, Copernicus, The Populist.

3.3 Switzerland context

3.3.1 Historical background

The creation of the Swiss Confederation can be traced back to the Middle Ages when in 1291, a peace alliance between Uri, Schwyz and Unterwalden was formed. Later in 1351 to 1353, the peace alliance included the imperial cities of Zurich and Bern, leading to the gradual formation of the "confederation of eight", namely Zurich, Bern, Luzern, Uri, Schwyz, Unterwalden, Zug, and Glarus (Swiss Confederation, 2021). The adoption of the Federal

Constitution of 1848 led to the creation of the Swiss Confederation as a Federal State (Kley, 2011). The Federal Constitution is the outcome of a brief civil war, the Sonderbund War, between the conservative and liberal Cantons regarding Cantonal sovereignty and the extent of centralised Federal power. The Swiss Confederation was noted for its neutrality during World War I and II, which was facilitated thanks to its flexible diplomacy (Kley, 2011). Swiss neutrality has favoured the role of the country as a centre for peace negotiations hosting multiple international organisations such as the League of Nations after World War I and the United Nations (UN).

3.3.2 Political structure

The Federal Constitution of 1848 was revised in 1874 to evolve from a representative democracy to a semi-direct democracy. The revised Federal Constitution transferred more tasks to the federal government and broadened democratic rights at the federal level. The referendum was introduced in 1874 and the popular initiative in 1891, making direct democracy a unique feature of the Swiss political culture (Federal Chancellery, 2020; Feld & Kirchgässner, 2000). Direct democracy has a considerable impact on Swiss political culture and has led to informed societal and economic public debates on a wide range of topics such as opting out of nuclear energy in 1979, joining the UN, abolishing the Swiss army, joining the European Economic Area EER, or increasing mineral oil taxes (Feld & Kirchgässner, 2000). Switzerland has a strict separation of power. The Federal State is headed by seven members divided according to the "magic formula" representing the four coalition parties forming the Federal Council—the national executive (Federal Chancellery, 2020). The Federal Council is elected for a four-year term by the Swiss Parliament (the federal legislature). The Swiss Parliament consists of two chambers: the National Council, which are representatives elected by Swiss voters, and the Council of States, which are representatives of Swiss Cantons. The Federal Supreme Court is the highest judicial authority in Switzerland.

Switzerland's political parties follow the traditional left-right spectrum. In 2019, there were six political parties, which accumulated at least 5% in the Federal Assembly, namely, SVP: 25.6%; SP: 16.8%; FDP: 15.1%; GPS: 13.2%; CVP: 11.4%; GLP: 7.8% (see Table 2). The Green Party (GPS) gained over 10% of the votes for the first time in the last election (Federal Chancellery, 2020). The far right and populist party SVP (The Populist, 2020) gained seats in Federal Elections since 1999 (see Table 2). The populist far right parties are especially influential in the rural and mountain regions—as the Berner Oberland or the cantons of Schwyz and Nidwalden reaching 40-50% of the popular vote (Republik, 2019). The left-winged SP (19.1%) and GPS (18.5%) are strongest in the French-speaking Swiss regions, whereas the liberal parties as FDP (20.4%) and CVP (18%) are influential in Italian-speaking Ticino (BFS, 2019b). The Swiss political scene is characterised by a conservative majority coming from a bourgeois-liberal coalition running against fragmented left and green parties, which tend to favour socially liberal reforms rather than egalitarian reforms (Vatter, 2020). However, the Swiss voters are increasingly environmentally aware with popular environmental referendums and increasing influence from the green party (Frischknecht et al., 2018).

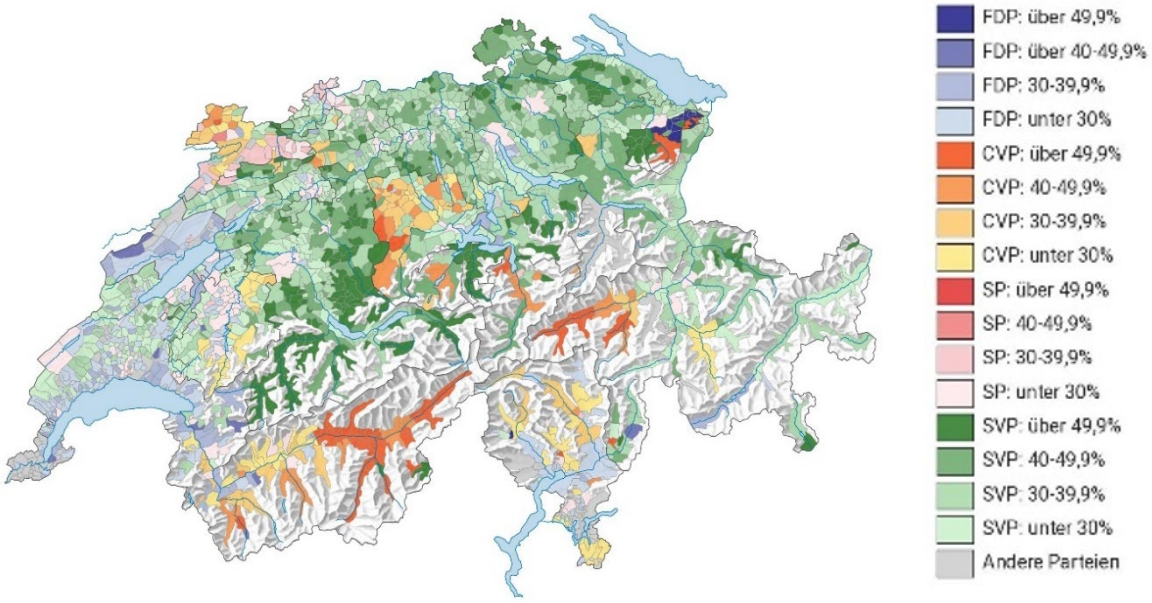

Figure 13. Spatial differences - strongest political parties (German). Source : BFS, 2019c.

3.3.3 Administrative divisions

Switzerland is one of the most politically decentralised countries in the OECD (OECD, 2011). The Swiss Confederation is composed of 26 cantons, whose sovereignty is defined in Article 3 of the Constitution. The cantons exercise all the rights not delegated to the Confederation in the Constitution (Fedlex, 2020a). As a federal state, power is shared between the federal government, the cantons, and the communes. The 26 cantons enjoy broad fiscal and regulatory competencies in carrying out their responsibilities, which range from economic development, education, and health to police and cultural affairs. They determine and pursue their own development trajectories (OECD, 2011). Communes must follow cantonal guidelines but enjoy some fiscal competencies in levying communal tax while regulating local zoning and planning (Federal Chancellery, 2020).

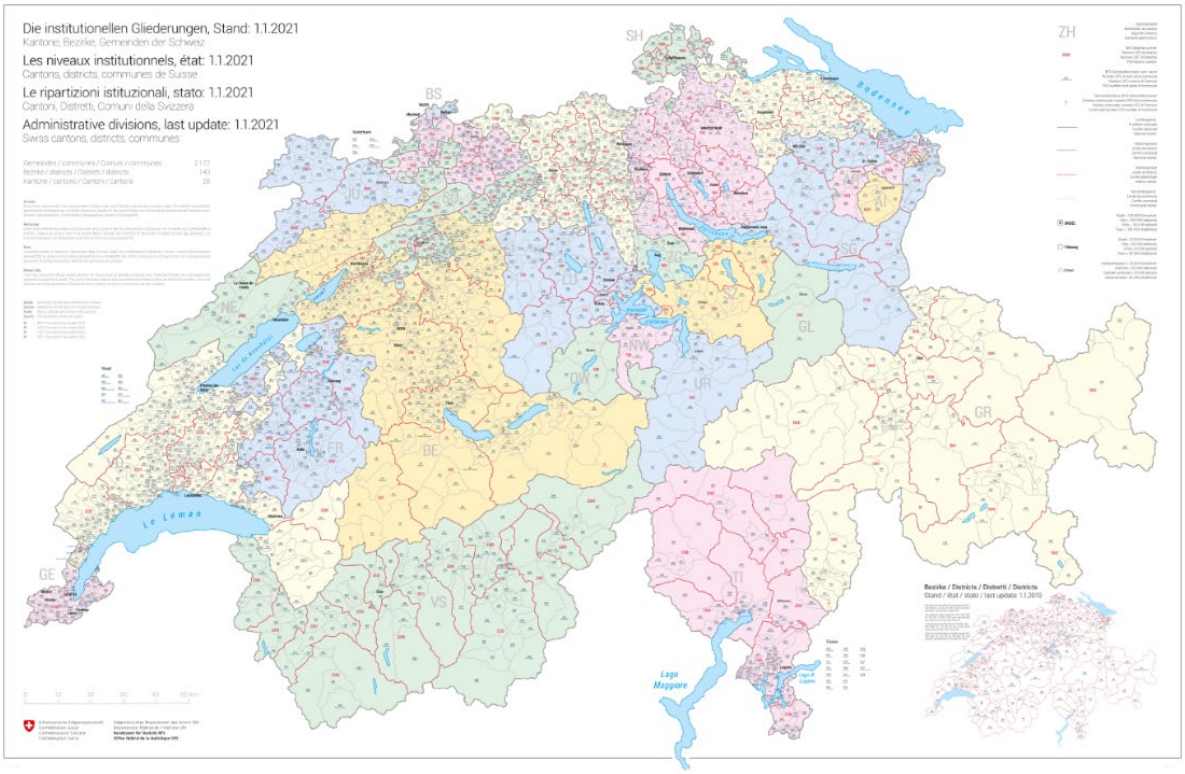

Figure 14. Switzerland and its institutional divisions (cantons, districts, municipalities). Source: BFS, 2020c.

3.3.4 Economic development actors

The main federal actors that promote economic development in Switzerland are the State Secretariat for Economic Affairs (SECO), which has a broad mandate to promote economic development, economic cooperation, labour, exportation-importation, SMEs, and tourism, and the State Secretariat for Education, Research and Innovation (SERI), which promotes higher education, research and innovation. Adopted in 2006, Article 64 of the Swiss Federal Constitution obliges the Confederation to promote scientific research and innovation (Fedlex, 2020a). In 2012, the Federal Government revised its research and innovation policies with the Federal Act on the Promotion of Research and Innovation (RIPA) (Fedlex, 2020b). Under RIPA, the Confederation (through SERI) is responsible for supporting research and innovation through the Swiss National Science Foundation (SNSF) and Innosuisse, the Swiss Agency for Innovation Promotion. SERI also pursues flagship projects, such as the development of the Swiss Innovation Park (see article 32 requirements for support from the Confederation, Fedlex, 2020b). Switzerland is one of the most competitive countries in the field of research and innovation worldwide with 3 percent of its GDP dedicated to R&D (SERI, 2020).

3.3.5 Urbanisation

Switzerland is a highly urbanised country. Urban areas account for 80% of Swiss economic activity. Half of the urban population live in Switzerland's five largest agglomerations: Zurich with 420,217 inhabitants, Geneva with 203,951, Basel with 173,232, Bern with 134,591 and Lausanne with 139,408 (EDA, 2021b). The Federal State, the cantons and the municipalities adopted the Territorial Project Switzerland (Raumkonzept Schweiz) in 2012 as a common development framework. It distinguishes four areas shaped by large towns, namely Zürich, Basel, Métropole Lémanique with Geneva-Lausanne and the Hauptstadtregion with Bern, five areas of Small- and Medium-Sized Towns (SMSTs), Luzern, Città Ticino, Jura Mountains, Aare Region and North-east Switzerland, and three alpine areas of action Gotthard, West Alps and East Alps. The 152 SMSTs in Switzerland can be clustered according to Meili and Mayer (2017) into seven different categories according to their economic heterogeneities, socioeconomic performances, and functional linkages:

- prospering residential economy towns,
- low tech towns,
- high tech towns,
- knowledge intensive towns,
- residential economy towns,
- alpine tourism towns,
- business hub towns

While the rapid urbanisation rate slowed down in the 1980 and 1990s, urban sprawl has continued (EDA, 2021b). The central plateau is highly urbanised and peri-urban (EDA, 2021c). The transportation system in Switzerland is well-integrated, despite topographical constraints, even for peripheral regions. However, transportation costs in Switzerland are relatively high in the international context (OECD, 2002). Switzerland's urban centres are characterised by a high number of commuters and cross-border workers. Indeed, 71% of Swiss employees work outside their commune, leading to a discrepancy between functional and administrative regions (BFS, 2019b; OECD, 2011). The integration of SMSTs in wider urban networks is especially important for the concept of borrowed size. Indeed, SMSTs can compensate for their lack of size by being well embedded in networks of cities (Kaufmann & Wittwer, 2019). The main states of residence of cross-border workers employed in Switzerland are France (189,670), Italy (80,303), Germany (62,333) and Austria (8,427) (BFS, 2021c).

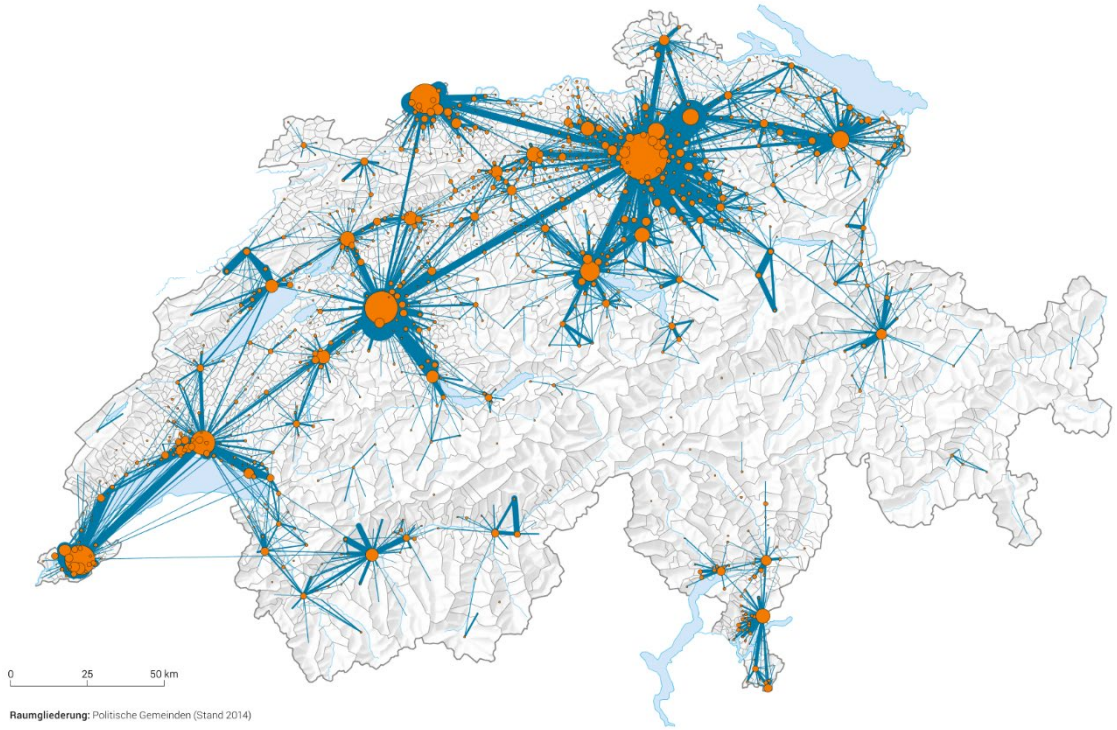

Figure 15. Commuters network. Source : BFS, 2019b.

3.3.6 Regional development

Despite its decentralised structure and internal competitive environment across cantons, Switzerland's internal disparities (the differences in cantonal economic performance) are relatively low in the OECD context (OECD, 2011). These low disparities are the outcome of multiple policies that promote territorial cohesion and equity across territories. These include agricultural policies from the 1950s and most notably the law on fiscal equalisation introduced in 1959. The Federal Law on Investment Aid for Mountain Regions (IHG) was introduced in 1974 to improve the preconditions for economic development and competition in mountain regions. SMSTs dominated by a single sector, such as watchmaking, textiles, or tourism, became prone to economic shocks in the late 1970s. As a result, the Federal state introduced the Bonny Resolution in 1978, to support the creation of employment in areas of economic renewal, and Innotour in 1997, to support the promotion of innovation and co-operation in tourism. In 1997, the Federal Resolution on the Support of Structural Change in Rural Areas (Regio Plus) was introduced to provide support for structural change in rural areas excluding support for infrastructure-oriented projects (Rodewald & Knoepfel, 2000).

Fiscal equalisation redirects financial resources through shared taxes and conditional transfers (OECD, 2011). Conditional transfers from the Confederation to the cantons allow sharing of the federal income tax, fuel duties, and Swiss National Bank profits, and sharing of contributions to federal expenditures for social security. In 2008, the National Fiscal Equalisation policy (NFE) was revised to increase transparency (Soguel, 2019). At the same time, the New Regional Policy (NRP) was introduced to support economic development in rural, mountain and border regions, replacing previous regional policies such as IHG, the

Bonny Resolution, Innotour, and Regio Plus. Under the NRP, the federal government and the cantons aim to reduce regional disparities through the promotion of innovation and competitiveness, using the regional innovation system (RIS) and the export-base model as conceptual underpinning (regiosuisse, 2021). Regiosuisse was created to facilitate peer learning and the exchange of best practices among development actors and the RIS administrative organisations, and to promote coordination of the NRP with other spatially relevant sectoral development policies such as the Agglomeration Policy (AggloPol), the Policy for Rural Areas and Mountain Regions (P-LRB) and the Territorial Project Switzerland (Raumkonzept Schweiz). The NRP also promotes European Territorial Cooperation (ETC) with Interreg, ESPON, URBACT and INTERACT programmes (regiosuisse, 2021). However, there is no well-defined policy for SMSTs on the national level due to their high diversity and for the high degree of decentralisation (Ecoplan, 2015).

3.4 Industrial context

3.4.1 Industrial development in an historical perspective

Switzerland began catching up with the most industrialised countries during the second industrial revolution. Swiss wages were lower than in neighbouring countries and began to converge with the rest of industrialised countries in the period 1885 to 1910 (Studer, 2008). The emergence of a competitive and high value-added industrial sector can be attributed to four main factors (Stadler, 2010; Studer, 2008). First, the country's central location within Europe's core industrial region (the "Blue Banana") ranging from North Italy to the Ruhr region and Britain; second, its open-market and export-oriented approach combined with strategic industrial policies; third, its production of specialty goods and high-quality goods; and fourth, its stability and neutrality during World War I and II that left its industries unscathed.

Switzerland's economic success is often attributed to its open-market and export-oriented approach (OECD, 2011). Indeed, Switzerland adopted a small open economy model focused on external trade, which was reaching an average of 67% of the Swiss GDP during the years 1891 to 1916 (Körner, 2010). The free-rider nature and absence of patent law until 1907 allowed Switzerland to rapidly catch up and contributed to the emergence of strategic industries such as food processing, chemical, and engineering industries (Studer, 2008). During the first and second industrial revolutions, Switzerland could not directly compete with large industrial powerhouses such as England, France or Germany, and resorted to the production of precision goods or niche high-quality goods (OECD, 2011; Studer, 2008). The country's stability, banking secrecy introduced in 1934, the currency's convertibility during the interwar period, labour peace in which labour and capital renounced strikes and lockouts in 1937, and neutrality during World War I and II were determining factors in Switzerland's economic success (Hitz et al., 1994; Studer, 2008).

After World War II, Switzerland realised the dividend of its neutrality, liberal and stable socio-economic conditions in elements of "selective protectionism" (Studer, 2008), an

accommodating fiscal regime, a highly skilled and flexible workforce, and an international outlook from its companies (Afonso & Mach, 2011; Hitz et al., 1994; OECD, 2011). In the 1970s, Switzerland's small and medium-scale manufacturing industries restructured, impacting the SMSTs that were relying on labour-intensive mono-industrial sectors (Hitz et al., 1994). In the 1980s to 2000s, thanks to its banking sector, the presence of multinational corporations, and the headquarter effect, Switzerland was able to reap the benefits of the financialization and globalisation of the world economy (Hitz et al., 1994; OECD, 2011). Five major Swiss cities largely benefited from this economic restructuring: Basel, Bern, Geneva, Lausanne, and Zurich (Hitz et al., 1994).

3.4.2 Economic shocks

After World War II until the 1990s, Switzerland was relatively unaffected by major economic crises or shocks compared to other European countries. The Swiss exception or *Sonderfall* is explained by the proximity between economic and political actors, the weak intervention of the Federal state, and the flexible labour force (Afonso, 2005; Armingeon, 2004; Freiburghaus, 1988; Katzenstein, 1985; see also National political economy). The Swiss economy went through short external shocks that were quickly absorbed, such as in 1973 and 1979 with the oil crisis, or the increasing competition from Asian tigers in the 1980s that saw relative industrial decline largely compensated with the tertiarization of the economy. The cyclical downturns were quickly absorbed thanks to the presence of foreign workers with precarious work permits, which was allowing Swiss companies to quickly adjust the foreign workforce to the economic conditions until the 1990s (Afonso, 2005; Alfonso & Mach, 2011). This pattern of adjustment is described as "selective corporatism" (Piotet, 1987) where foreign workers bore the costs of economic downturns.

Despite the overall Swiss economic stability until the 1990s, one emblematic Swiss sector, the watchmaking industry, entered a structural crisis in the mid-1970s to late 1980s known as the "Quartz crisis" (Donzé, 2014). In the early 1970s, Japanese watchmakers embraced quartz technology that was cheaper and more precise than traditional Swiss mechanical watches. In the 1960s, Switzerland dominated the production of global watch and watch movement production. The rapid growth of digital and quartz watches led to a rapid decline in the number of watchmaking companies from 1,618 enterprises in 1970 to 861 in 1980, and a rapid decline in employment from a peak of 90,000 to 32,000 persons in the 1990s (Donzé, 2014; Twinam, 2020). This structural crisis had a considerable impact for watchmaking centres such as Biel/Bienne, La Chaux-de-Fonds, Le Sentier, Le Locle, and Neuchâtel (Twinam, 2020).

In the 1990s, the Swiss economy went into a recession, remaining stagnant until 1997. The unemployment rate increased sharply and peaked at 5.2% in 1997, its highest point since the great depression (Degen & Fischer, 2017). During this period, unemployment could not be exported due to regulations concerning foreign workers who were entitled to unemployment benefits under bilateral agreements with neighbouring countries (Afonso, 2005). The slow growth period was the consequence of a real estate crisis that was reinforced with lower demand from a declining number of foreign workers (Degen & Fischer, 2017). Business associations emphasised the role of regulatory costs, high taxes, and salary costs, while the

trade unions highlighted the lack of accommodating monetary policies in the rise of unemployment (Körner, 2010). Switzerland has followed conservative monetary policies where mechanisms such as “the debt brake” (Beljean & Geier, 2013) have been introduced by the Confederation to stabilise the federal debt. In the 1990s, the share of the industrial sector in the GDP has declined from 31.1% in 1990 to 25.4% in 2000 (see Table 2).

Despite its important banking sector, the Swiss economy rapidly recovered from the financial crisis of 2008-2009 without increasing its public debt due to interventions by the Swiss National Bank (SNB) (Mombelli, 2018). In 2010-2011, the Eurozone crisis led to a sharp appreciation of the Swiss franc, which was curbed from SNB intervention until 2015 when the Swiss franc and euro were again floated (Simon & Hausner, 2012). The high franc was slowing down growth and reducing exportation and tourism, contributing to a rise in unemployment (Simon & Hausner, 2012). The Eurozone crisis and high Swiss franc had a major impact on manufacturing exports as a share of merchandise exports, with a sharp decline from 86.2% in 2011 to 56.3% in 2013, affecting the gross fixed capital investments as well in NOGA C (manufacturing) (see Table 2). In 2020 and ongoing in 2021, Switzerland was impacted by the COVID-19 pandemic leading to a recession, a sharp increase in unemployment, and a health crisis, which was compensated by increased State intervention (Arni, 2020). Switzerland was less affected than neighbouring countries with a decrease in real GDP in 2020 of 3.3% compared with 8.9% in Italy, 8.2% in France, 6.6% in Austria, and 4.9% in Germany (IMF, 2021).

3.4.3 Swiss industrial structure

Switzerland is one of the most competitive countries in the world. It ranks 5th in the competitiveness index (WEF, 2019) and is the second most complex country in the Economic Complexity Index (ECI) ranking (Harvard University, 2018). The Swiss workforce is highly skilled. In 2018, 44% of the population between 25 to 64 years old had a tertiary education (BFS, 2020d). Switzerland is an export-oriented economy with a significant manufacturing sector, which accounts for 20.8% of the total workforce (BFS, 2021a). The main exporting manufacturing industries are chemicals (23.6%) and machinery (15%). Moreover, the service sector (banks, insurance, tourism) accounts for a significant share of Switzerland’s foreign trade: 29% of all exports and 28% of all imports (Harvard University, 2018; see Figure 16 and Figure 17).

Industrial competitiveness and high complexity are reflected in different industrial and structural indicators (see Table 2). The value-added per worker in the industrial sector is one of the highest in the world and stood at USD $188,355 in 2019. Moreover, the share of medium and high-tech exports in the total of manufactured exports has increased from 62.3% in 1990 to 70.2 % in 2018. However, the Eurozone crisis and high Swiss franc had a negative impact on manufacturing exports with its share in total export activity declining from 86.2% in 2011 to 56.3% in 2013. This recovered to 73.8% in 2019; a similar recovery can also be observed in the yearly growth of gross fixed capital investments in manufacturing, jumping from 49.54% in 2010 to -1.65% in 2015, coming then back to 15.17% in 2018 (see Table 2).

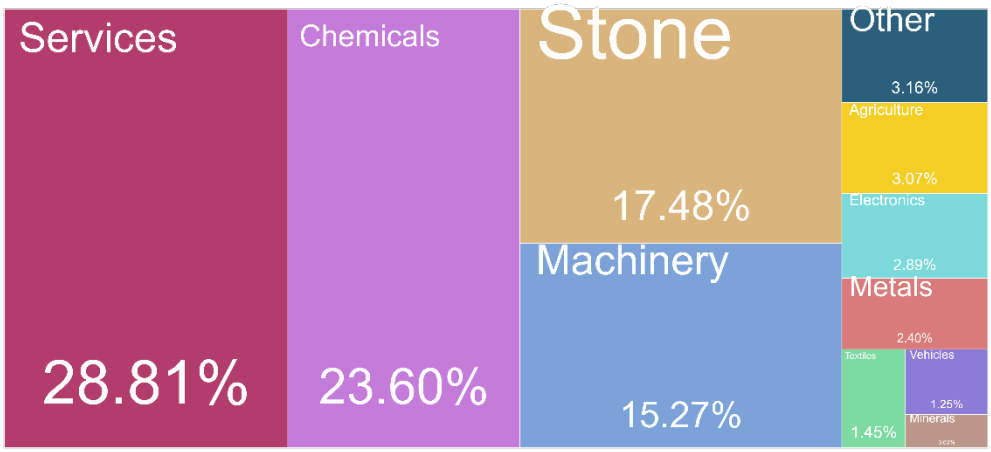

Figure 16. Export basket. Source: Harvard University, 2018.

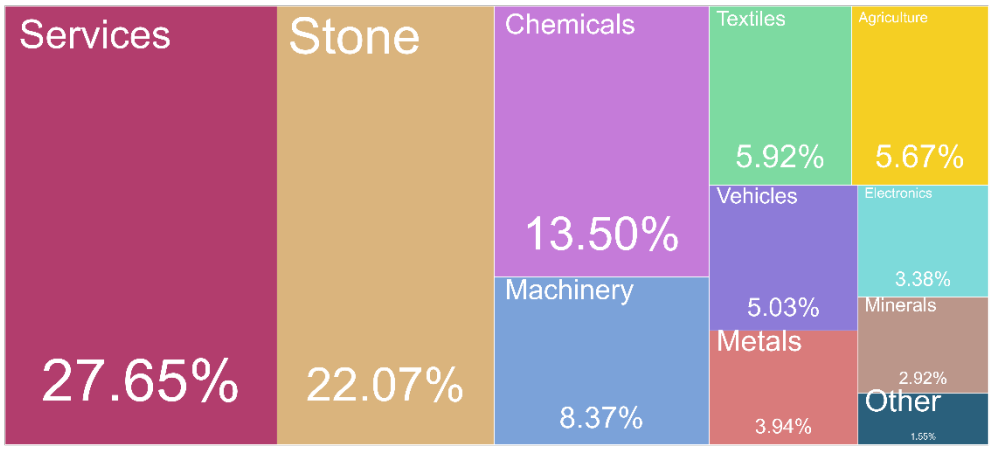

Figure 17. Import basket. Source: Harvard University, 2018.

The Swiss economy is characterised by its dense fabric of small- and medium-sized enterprises (SMEs). Companies with less than 250 employees account for 99.7% of Swiss companies, 67% of the country's employees, and 45% of the country's exports (SME Portal, 2020). Switzerland is home to 14 of the 500 largest multinational companies (MNCs) in the world by revenues (Fortune, 2020). Companies with the highest sales in Switzerland are commodity traders, nutrition and pharma industries with their headquarters in metropolitan areas (Bisnode, 2021). Fiscal incentives, the accommodating Swiss fiscal regime, and the observer role at the United Nations (UN) until 2002 when Switzerland became a full member have attracted the location of multinational headquarters. Commodity traders, however, provide little employment and are controversial due to their poor environmental and social performance (Braunschweig et al., 2011).

3.5 National political economy

Switzerland features a hybrid institutional framework that possesses some elements of a coordinated market economy (CME) and some elements of a liberal market economy (LME) (Hall & Gingerich, 2004; Kenworthy, 2006; Mach & Trampusch, 2011). Switzerland's organisation of the economy, the limited public policy intervention, the dominance of business associations, the proximity between political and private actors, the influence of conservative right-wing political parties, the weak trade unions, and left-wing political parties are more characteristic of an LME. The high degree of collective regulation by private actors influencing corporate governance, selective "protectionism," and industrial and inter-firm relations resemble a CME. This hybrid national institutional context constitutes the Sonderfall Schweiz: a heterogeneous patchwork with an incoherent set of Varieties of Capitalism components (Afonso & Mach, 2011; Mach & Trampusch, 2011).

The Swiss regulative institutions are devised in a highly decentralised manner from multiple interactions across federal institutions, bicameralism and separation of powers, cantons, and direct democracy. The strict separation of powers and interactive regulative institutional process lead to regulative institutions that tend to favour the status quo and individual responsibilities (Feld & Kirchgässner, 2000). The Swiss normative institutions involve a high sense of responsibility and autonomy leading to self-regulation, strong working culture, cohesive business organisations, and strong public-private coordination (Afonso & Mach, 2011). The Swiss cultural-cognitive institutions are strongly affected by the language divide and the subsequent cultural influences from the three large neighbouring countries, namely Italy, France, and Germany (Eugster, 2017; Volonté, 2015). The Swiss pride themselves on their culture of consensus and autonomy and their unique quadrilingual, decentralised, and democratic model spearheaded by direct democracy, bicameralism, and the "magic formula" (Hänggli & Häusermann, 2015).

Mach and Trampusch (2011) identify three key features of the Sonderfall Schweiz. First, the Federal State, with its decentralised structure and political context with direct democracy limit its capacity for state intervention. Second, economic and business associations have a strong history of regulating their industries and engaging in lobbying. Third, the dominance of right-wing political parties characterised by their close proximities with business interests leads to free-market and export-oriented business networks (Mach & Trampusch, 2011). This is especially true for the commodity trade industries, which benefit from the Swiss liberal financial centre, accommodating cantonal tax regimes and privileges, and weak federal interventions (Braunschweig et al., 2011). In sum, the Swiss federalist structure, the strong business interests, and limited social policies lead to a "heterogeneous and layered system of social protection mixing private, public and semi-public service providers: private companies, trade unions, municipalities and cantons" (Mach & Trampusch, 2011, p. 18).

Swiss industrial relations are characterised by weak trade unions (17.4% of employees are unionised), low employee participation in companies' decisions and weak labour protections (Mach and Trampusch, 2011). The labour movement and working class are politically weak, hindered by the "decentralised economic structure and the absence of large industrial plants; linguistic and religious cleavages; and the continuous presence of a large foreign workforce […] not endowed with electoral rights" (Mach & Trampusch, 2011, p. 17). The large presence

of foreign workers with precarious work permits function as a buffer for Swiss companies to quickly adjust to negative business cycles and ultimately protect Swiss employees (Afonso, 2005; Alfonso & Mach, 2011). There are multiple business associations representing export-oriented industries and protecting their economic interests (Mach & Trampusch, 2011). Economiesuisse, the former Swiss Federation of Commerce and Industry SHIV, is the umbrella organisation that protects economic interest (Nehrlich & Hofstetter, 2020). The Swiss Association for Small and Medium-sized Enterprises promotes the interests of manufacturers and SMEs (Degen, 2015a). The Swiss Trade Union Confederation is the largest and politically most important umbrella organisation of Swiss employee associations (Degen, 2015b). The Swiss Farmers' Union represents agricultural interests (Baumann, 2015). As a result, the role of business associations combined with their proximity to dominant political parties encourages close inter-firm relations.

Vocational training and education are the outcomes of self-regulation in the business and political context. While vocational training and education are publicly subsidised, they are strongly influenced by private actors, and Swiss business associations have always been involved with vocational training and education. For example, the Swiss Association for Small and Medium-sized Enterprises supported a 1879 reform of the Swiss education system, which later led to the formation of the Swiss dual education. This framework allows people to change their educational path at any time, whether from apprenticeship to academics or vice versa (Kaili et al., 2021). There are strong links between business associations and prestigious tertiary education institutions such as the universities of Bern and Zürich (e.g. law) or ETH Zürich (e.g. technical engineering) where graduates have access to elite positions (Bühlmann et al., 2017).

Corporate governance relies on collective and associational self-regulation that emerged to complement the Swiss legal framework, either as a pre-structured condition, or an addition to an existing policy (Mach & Trampusch, 2011). Since the 2000s, however, new structures are evolving due to a changing Swiss elite (defined as the social groups whose are positioned to influence national socio-economic development) (Hartmann, 2007). The proximity between political and business associations that characterized the Swiss elite in the post-war period tends to be looser (Hartmann, 2007; Katzenstein, 1985). Indeed, parliament members are increasingly dedicating themselves exclusively to a political career. With the financialization of the economy, Swiss multinational companies are increasingly being run by international CEOs, who are often criticised for having rather superficial ties with Switzerland (Bühlmann et al., 2017).

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4 Slovenia: Case study towns

4.1 Introduction

This chapter examines the three Slovenian case study towns—Idrija, Kočevje, and Trbovlje—in their respective contexts. Each case study town is divided into four subchapters to explore the case in its (1) region, (2) regional innovation systems (RIS), and to describe (3) its industrial development and economic shocks and (4) its idiosyncratic industrial culture.

The first subchapter explores the case-study towns in their respective development regions: Gorica, Southeast Slovenia, and Central Sava. It provides an overview of these regions and their distinctive contexts, regional development trajectories, and institutional dimensions. Table 3 provides an overview of the case study towns in their respective regions.

	Idrija	Gorica Region	**Kočevje**	Southeast Slovenia	**Trbovlje**	Central Sava Region
Population (2019)	**11,797**	118,008	**15,688**	144,688	**16,037**	57,059
Population growth (2010-2019)	**0.99**	0.99	**0.95**	1.02	**0.92**	1.29
0-14 years old (%)	**14.6**	14.8	**14.8**	16.2	**13.1**	14.4
15-64 years old (%)	**62.5**	62.5	**63.9**	65.2	**63.8**	64.7
65-80 years old (%)	**23.0**	22.6	**21.4**	18.6	**23.1**	20.9
>80 years	**6.7**	6.5	**6.2**	5.3	**5.6**	5.4
Foreigners in %	**4.9**	/	**17.6**	/	**14.3**	/
GDP per capita in EUR (2019)	**/**	20,707	**/**	23,096	**/**	12,287
Working places in secondary sector in 2020 (%)	**46.8**	/	**46.1**	/	**25.4**	/

Table 3. Regional administrative jurisdictions, statistical overview. Source: SURS.

The second subchapter describes the case-study towns' embeddedness into their respective regional innovation systems (RIS). Slovenia is administratively divided into 212 municipalities and formally does not have a regional tier of government. However, the Slovenian territory is divided into 12 development regions (also statistical regions) that correspond to EU NUTS3 regions. The case study towns of Idrija, Kočevje and Trbovlje belong to three different development regions: Gorica region (Idrija), Southeast Slovenia region (Kočevje) and Central Sava region (Trbovlje). The 12 development regions, with their respective municipalities, established regional development agencies that carry out regional development policies in the fields of economic development and entrepreneurship, human resources and sustainable

development. Additionally, due to historical, geographical and functional idiosyncracies, some municipalities also established local interest-based development agencies/centres, such as Idrija-Cerkno, and Kočevje-Ribnica. Regional innovation systems in this subchapter thus consider both the wider, national framework of RIS facilitated by national development policies, regional developmental context of RIS, and the more local municipal or microregional level system that support local development.

Slovenia supports entrepreneurship and innovation on regional and local level through a relatively weak institutional foundation. Regional innovation systems are facilitated by national institutions, such as the Government Office for Development and European Cohesion Policy (SVRK) and the Ministry of Economic Development and Technology (MGRT). The former provides the development strategy of Slovenia 2030 (SVRK, 2017a) as an overarching government strategic document that sets long-term national development goals. The latter, MGRT, directorate for regional development, sets the regional policy objectives, guidelines and instruments of regional development as an offset for regional development programmes (MGRT, 2018). Regional development programmes are further prepared by 12 regional development agencies and implemented in their respective development regions. SVRK also set the smart specialization strategy (2017b) that has encouraged research, innovation, human resource development, entrepreneurship, and internationalisation of Slovenia's economy from 2017 onwards. It introduced a novel model of establishing Strategic Research and Innovation Partnerships (SRIP), comprised of state administration, economy, research institutions, universities and other stakeholders in the field of research, development and innovation. In 2021, the 9 SRIPs have implemented 9 areas of the smart specialization strategy (SVRK, 2021): smart cities and communities, smart buildings and home, circular economy, sustainable food production, sustainable tourism, factories of the future, health and medicine, mobility, and materials as end products. In the field of education and research, the Ministry of Education, Science and Sport (MIZŠ) provides the National Research and Development Programme (MIZŠ, 2016). The Programme is implemented through Slovenian research agency (ARRS) and funds basic and applied scientific research carried out in public and private research institutions and universities. There are also several institutions providing support to entrepreneurship and the economy as a whole, such as SPIRIT Slovenia (a public agency for entrepreneurship, internationalization, foreign investments and technology), the Chamber of Commerce and Industry with its regional branches, and the Chamber of Craft and Small Business with its regional branches.

The third subchapter illustrates the case study towns through the lens of the industrial development trajectories and economic shocks. The main economic shocks and subsequent path trajectories are described using the conceptual framework by Martin (2012) and Martin and Sunley (2015).

The fourth subchapter uses the concept of industrial culture to describe the tangible and intangible elements of industrial culture in each case-study town. The concept of industrial culture provides an analytical framework for understanding various, context-dependent developmental trajectories in different towns. Industrial culture is described through material assets (townscape, industrial heritage), value-based assets and identity (place identities and presentation of industrial culture), knowledge production (traces of industrial past in formal and

informal education), norms, rules and habits (social traditions, regulations, strategic orientations), and experiences, and stories (industrial narratives, company narratives).

4.2 Case study town: Idrija

Idrija is one of the most economically developed, export-oriented and "self-sufficient" town in Slovenia, with a high percentage of residents working in the same municipality. The unemployment rate in Idrija is traditionally much lower than the national average. Despite favourable economic indicators, Idrija lacks economic diversity and shows a strong dependence on two flagship companies.

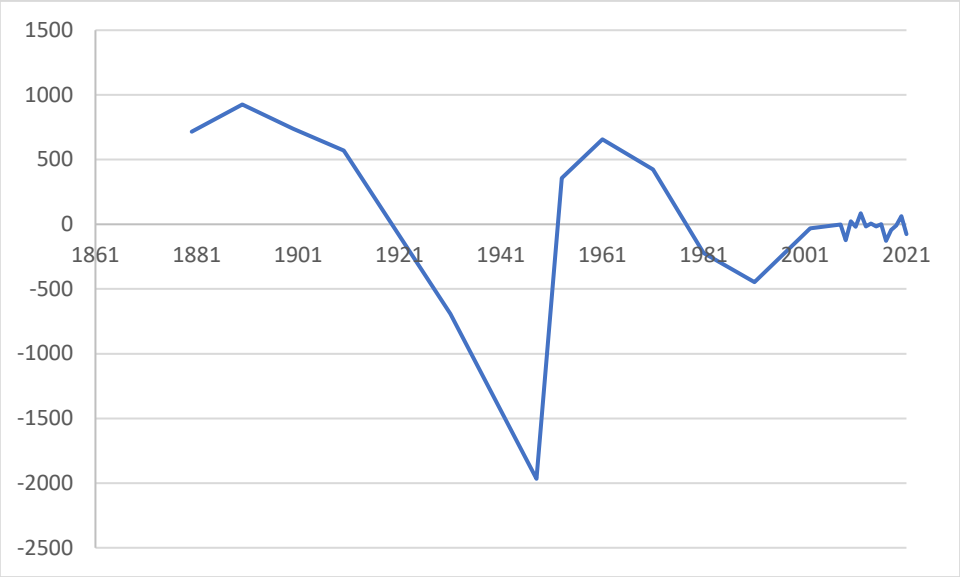

Figure 18: Absolute changes in population in Idrija 1880–2021. Source: the authors from SURS.

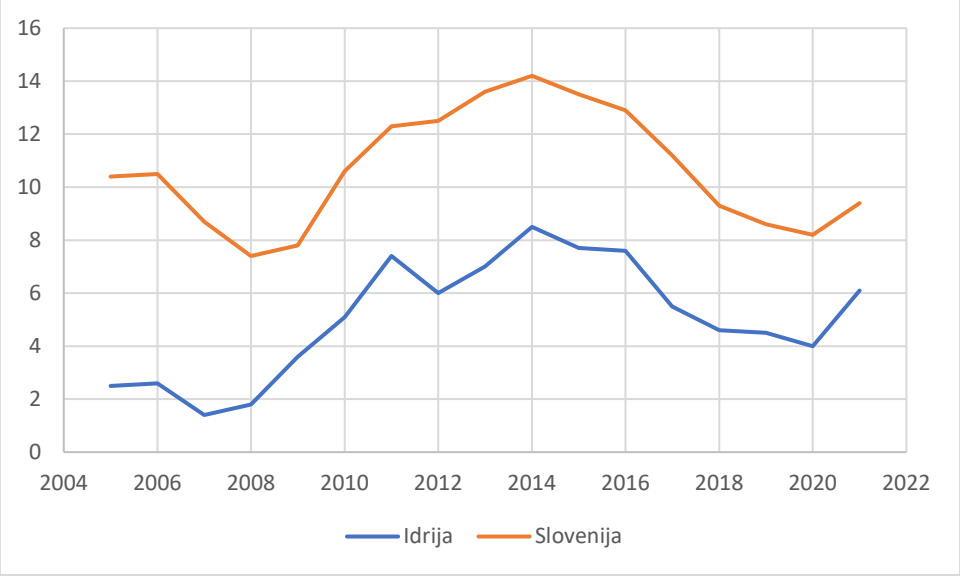

Figure 19: Unemployment rate in Idrija and Slovenia. Source: the authors from SURS.

4.2.1 Idrija's regional institutional context

Idrija is part of the Gorica development region. The region covers 2,325 km^2, which represents around 10% of the Slovenian territory. It is situated in the western part of Slovenia (see Figure 20). 118,008 inhabitants lived in 2021 in Gorica region, which represents 6% of the Slovenian population and is one of the least populated regions in Slovenia (51 inhabitants per km^2). The region is comprised of 13 municipalities. With 31,932 inhabitants, Nova Gorica is the only city municipality. Idrija is the third largest municipality with an area of 293.7 km² and 11,797 inhabitants. The Gorica region has one of the highest shares of the elderly (aged 65 and above) and the highest aging index (153) among all Slovenian regions (SURS, 2021b).

Although the Municipality of Idrija is part of the Gorica development region, it is relatively isolated both geographically and functionally (Bole, Gabrovec & Kozina, 2010). The region is divided into four parts. One of these includes the municipalities Idrija and Cerkno, which form an interest-based "microregion" with its own Idrija-Cerkno development agency (ICRA).

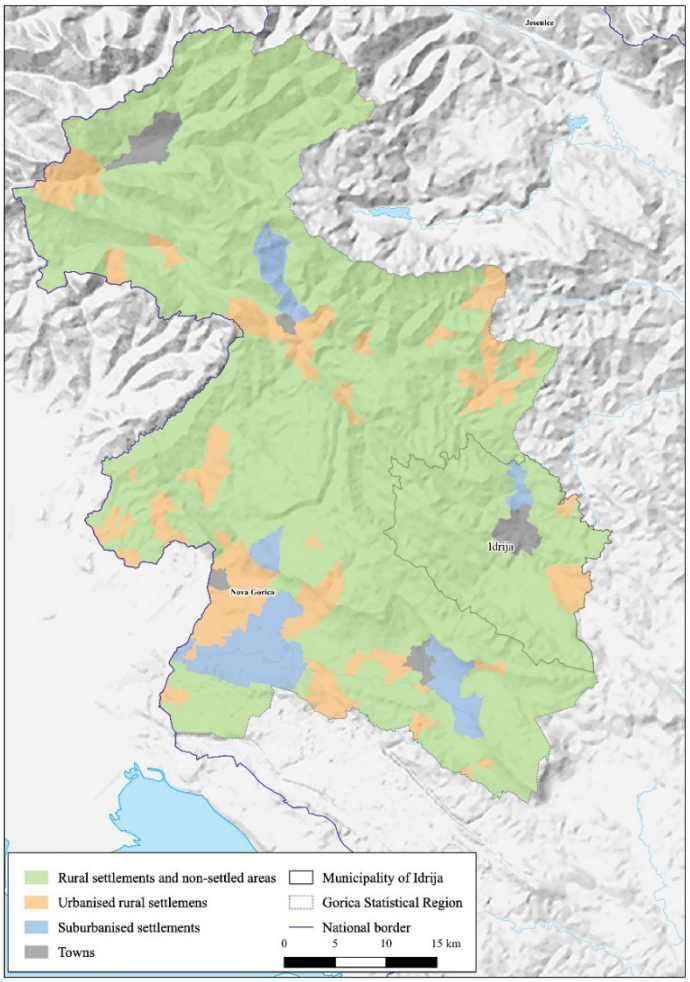

Figure 20. The Gorica Region: Settlement structure.

The discovery of mercury ore in 1490 and its exploitation initiated early industrialisation. Prior to World War I, the Idrija mine was one of the most lucrative and modern mercury mines worldwide. With more than 13% of world production, the Idrija mine was the second-largest, after Almadén, Spain (Leskovec & Peljhan, 2009; Urbanc et al., 2012). Its production stagnated during the interwar period when Idrija belonged to Italy. The downfall of the mine started in the 1970s with a sharp drop of mercury prices in the global market. At the end of the 1980s, the formal decision to close the mine in Idrija was made (Zorn et al., 2015).

Two larger enterprises had already began operating in Idrija in the 1960s: Kolektor, a commutator-producing company, and Hidria, which produced and assembled central heating, plumbing, and air condition appliances. Kolektor has developed into a fast-growing global corporation in the field of automobile industry, household appliances and electric manual tools with more than twenty subsidiary companies worldwide (Kolektor 50 let, 2013; Zorn et al., 2015). Hidria has also became a global company with thirty subsidiary companies worldwide. It has its own R&D institutes oriented towards sustainable development. In 2013, Hidria was declared Europe's most innovative company and won the European Business Award. With these two companies, Idrija has successfully restructured from an old mining town into a vital innovative industrial area. Its success stems from already consolidated international recognition and inclusion in global trade. Local companies have successfully integrated technical expertise, global business and academic ties, human resources, and a strong local identity. Idrija's restructuring process was also financially supported by substantial incentives from the state (Kavaš & Koman, 2010; Zorn et al., 2015).

Idrija today ranks among Slovenia's most economically developed towns. In terms of employment, the Idrija-Cerkno microregion is highly self-sufficient (Bole, Gabrovec & Kozina, 2010, SURS, 2021c). In 2019, 73% of the regional working population worked either in Idrija or Cerkno. However, the share of Idrija's working population working in the same municipality has considerably decreased in last decades, decreasing from 84% in 2000 to 62% in 2019. The unemployment rate in the Idrija-Cerkno microregion has also been considerably lower than Slovenian average (11%): in 2016, the unemployment rates were 5.3% in Cerkno and 6% in Idrija. The Municipality of Idrija is one of region's strongest economic centres with the above average net wages (1,162 EUR) (SURS, 2021b).

However, despite favourable economic indicators, the microregion's economic path shows hidden dependency. Idrija has remained a traditional industrial town with a prevailing secondary sector. It attracts high-profile technical experts on the one hand, and unskilled and semiskilled workers from the wider region on the other. Despite relatively secure jobs within home municipality, Idrija lacks workplaces in non-technical fields, e.g. in specialized high value-added services, such as business consultancy, financial and legal services, and small-scale entrepreneurship. Workers in these branches thus commute daily to other employment (or service) centres, such as Ljubljana, or out-migrate (Urbanc et al., 2012).

Inhabitants of Idrija have acquired values related to the rich regional technological heritage, Idrija's global economic profile, and its geographical remoteness. Even today, Idrija maintains its openness to new ideas and knowledge, but also nurtures strong interpersonal relations, solidarity, strong local identity, sense of belonging, and strong and active civic participation culture (Fromhold-Eisbith, 1999; Rösch, 2000; Zorn et al., 2015).

4.2.2 Idrija: Regional innovation system

Idrija is one of the two municipalities that form the Idrija-Cerkno microregion. Idrija's innovation system is supported by the Gorica regional development agency and the interest-based local Idrija-Cerkno development agency (ICRA). Both facilitate entrepreneurship, innovation, skills development, rural development, and heritage protection and promotion.

Idrija's two leading companies, Kolektor and Hidria, are global corporations that are well integrated into national and global innovation systems. Each corporation has established its own network of innovation, R&D and competence centres and institutes, some located in the Municipality of Idrija and some in their branches or headquarters. However, the relatively small size and peripheral location of the town are not conductive to large-scale R&D activities. Both companies consequently developed compensating strategies to attract external innovations, mainly via numerous acquisitions of smaller high-tech companies from abroad or by fostering strategic relations with similar companies (e.g. Bosch and Alcatel). Besides Kolektor and Hidria, there is also an OC IMP KLIMA R&D Centre in Godovič, an important development and training centre established in 2006. Since then, it has been engaged in the development of state-of-the-art indoor climate systems. Originally founded by Hidria IMP KLIMA, it became part of the Swedish Lindab Group in 2015 and part of the Dutch Orange Climate in 2020. All three companies closely collaborate with other Slovenian and foreign research institutions and universities and are members of several SRIPS: Hidria operates within smart buildings and home, and materials as end products SRIPS, Kolektor operates within circular economy, factories of the future, and materials as end products SRIPS, and OC IMP KLIMA in smart buildings and home SRIP. Other institutions are also connected to and collaborate within SRIPs, such as the vocational school in Nova Gorica (SŠNG) and the University of Nova Gorica.

Apart from active companies that have achieved global significance in recent decades, it is important to mention the pioneering role of the Idrija Mercury Mine in the past. The Idrija mercury mine was at the forefront of innovation during its century-long period of operation, and was involved in global trade. The accumulated knowledge on mercury is now managed by the CUDHg, responsible for the preservation of mercury heritage in the transnational Almadén and Idrija UNESCO World Heritage Site.

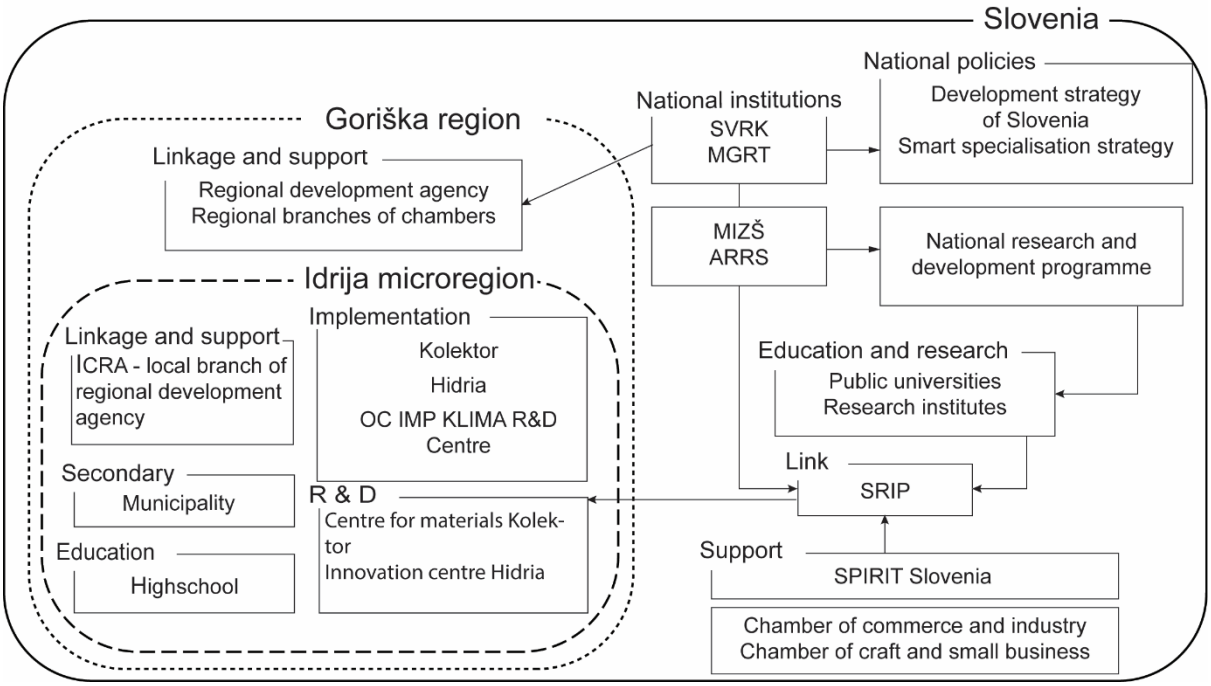

Figure 21. Idrija's innovation system.

4.2.3 Industrial development and economic shocks in Idrija

The small town of Idrija was known for centuries as one of the most important exporters of mercury. Located in a remote area of the Dinaric-Alpine macroregion, it reached 14,000 inhabitants in 1910 and stabilising at around 12,000 inhabitants in the last decades (Fridl & Repolusk, 2011). In its five hundred years of operation, the Idrija mine produced 147,000 tonnes of mercury, representing 13% of global production (Zorn et al., 2015). The mine was owned by the Habsburgs for almost five centuries until it was transfered to the Italian State after World War I and later (after World War II) became one of the most important export-producing mining towns in Yugoslavia (Cigale, 1981). The town's economy was monostructural until the 1960s, with the male workforce working in the mines while the women worked in the households, earning additional income through lace-making or part-time farming (Murovec, 1998). Over time, Idrija closed its mines and became the seat of two multinational electric-parts companies with factories in South Korea, China, Germany and other parts of the world.

The biggest shock in the town's history was the closure of the mine. Production peaked in 1966 when 1224 miners were employed (Cigale, 1981). By the late 1960s, mercury prices had already begun to fall due to increased global competition and reduced demand due to environmental concerns over the use of mercury in industry (Čar, 1978). The crisis began in the early 1970s, when production was no longer economically justified. The mine continued to operate based on its fiscal reserve from previous years, but employment started to decline. In 1977, mercury production was finally shut down by the government, which did not want to cover the mine's financial losses (Cigale, 1981). About 900 miners did not return to work but

were kept on, which prevented social unrest despite the threat of strikes by the miners (Kavčič, 1997).

The response to this shock was mediated through governmental actors who were in charge of the mine and local institutional actors. They were able to informally pressure the central government to enforce economic policies. Incentives for sectoral diversification started before the shock and were not exclusively economic: they were about creating additional jobs for the female labour force and the youth unable to work in the mines (Murovec, 1998). For this reason, new factories were already established or relocated from other parts of Slovenia in the 1960s, before the beginning of the mercury crisis. Kolektor was established in 1963 as a small enterprise employing women with intricate craft skills, fostered by lace-making, to produce electric motor parts (Kovač, 1978). Due to pressure exerted by local authorities on the central government, the largest state-owned electronics industry (Iskra) relocated a small part of its operations related to cooling/air conditioning to Idrija. These diversification efforts resulted in smaller wood processing, electronics and other industries that were subordinate to dominant mining activities.

By the time the mercury crisis reached its peak in 1975, the town already had a number of small industrial firms. The main reasons for the successful transformation from mining to industry was the retraining of miners to become skilled workers in these smaller industries: nearly 500 miners were trained to work in machine production, electronics, woodworking, etc. Another 200 miners were kept to maintain the mine even after its closure, while the remainder (about 200) took early retirement (Cigale, 1981). The retraining effort was largely due to the policy of the central government, which passed a law offering substantial financial aid for the retraining of miners, and tax breaks of up to 90% offered to the smaller industrial firms for employing them. This was possible in the centralised socialist political system, where maintaining social structure was considered more important than producing economic results. Educational infrastructure also played an important part, since vocational training was already well established within its secondary school system in Idrija.

In addition to institutional factors, we should also highlight the entrepreneurship of local businesses. Although they lacked the know-how and technological aspects of manufacturing electric motor parts, managers convinced the central government to enter into a cooperation with Kauut & Bux, a global manufacturer of electric motors from Germany that became a minority owner of Kolektor. This was one of the first examples of cooperation between the socialist East and the capitalist West (Kovač, 1978). This cooperation meant that the company gained access to new technologies and foreign markets, and became market- and export-oriented. Spillover effects were visible in the electronics manufacturing industry in the town, which grew from the 1970s onward and became the dominant industry soon after the mine closed. The industry peaked in the late 1980s, when nearly two-thirds of jobs were in the industrial sector and the majority of these in two electronic companies: Kolektor group (mainly electro motor parts) and Iskra (now Hidria group, mainly cooling systems and electro motors) (Stat.si, 2021). It took only a decade for Idrija to transform from a mining to a manufacturing town.

The town has not experienced any shocks comparable to the mine closure of the 1970s. However, we can distinguish two other transformation periods in this region. The first was

Slovenian independence in 1991, which meant a new economic and political system. Since the large companies in Idrija were already export-oriented, they were not affected like other industries in Slovenia, which were heavily dependent on the ex-Yugoslav markets. The companies were privatised when the managers became majority owners of the company in what is known as the managerial buyout, which was made possible by privatisation legislation in the country's transition years (Gregorič & Simoneti, 2004). The two major companies became partially family-owned. Moreover, the companies were no longer technologically dependent on foreign companies, but even surpassed them: for example, Kauut & Bux was liquidated in 1993 and became part of the Kolektor Group (Šemrl, 2012). The 1990s became a golden era for Idrija, as companies expanded their operations in Idrija and opened new production lines domestically and abroad. While Slovenia and the rest of the post-socialist countries experienced rapid deindustrialization, employment in industry in Idrija increased to almost 70% in 1995. The main reason for this success was the highly skilled engineering workforce, which was much cheaper compared to their competitors in Western Europe, and the constant technological innovations to keep up with the competition (Mirkovič, 1988).

The second shock was the global financial crisis in 2008, which affected both companies and proved to be more challenging as they were almost exclusively export-oriented. The crisis in the automotive industry led to a decline in demand (e.g. Hidria received 30% fewer orders in 2009 (Dragoš, 2009)). The crisis was exacerbated by increasing rivalry between companies, with hostile takeovers and increasing competition leading to over-indebtedness (Dragoš, 2008). The shock led to a slight increasing unemployment, which remained well below the Slovenian average, and to shorter working hours. Institutions also played a role, since both companies received state aid and were main beneficiaries of state social funds and European funds for technological research (Hren, 2009). The large companies proved adept at gaining political support and influencing policy at the local and state levels. At the local level, the shock lasted until about 2012, much shorter than at the state level, where pre-crisis levels were not regained until the second half of the 2010s.

The last shock highlighted the vulnerability of Idrija's monostructural economy. Diversification became a priority for institutional actors and led to service-based activities being brought to the town: the mine was declared a UNESCO heritage site in 2012, the Geopark was established in 2013 and in 2011 Idrija became the "Alpine Town of the year" (Zorn et al., 2015). The necessary infrastructure (e.g. roads and health care) was partly financed by the national "mining damages fund" established in 2005 (Močnik, 2005). Firm actors attempted sectoral diversification. Kolektor took advantage of the financial crisis and acquired a weakened construction company in 2016 to become the country's leader in this sector. Hidria established several research institutes and diversified its production to components for electric and hybrid cars (Dragoš, 2016). However, one should acknowledge the location disadvantage of the town, particularly the distance from established research institutions. Both companies compensated by entering into collaborations with other knowledge-intensive companies (e.g. Alcatel, PSA, and Bosch) or by buying up smaller tech companies from Europe (Močnik & Kovič, 2017). This could be traced to earlier cultural traditions when the mine was the centre of knowledge and innovation, attracting scientists across borders (Scopolli, Hacquet) and opening up to the world.

4.2.4 Economic shocks in Idrija: General overview

Town	Estimated time frame	Type of shock	Cause of shock	Pre-shock growth path[1]	Reaction to shock[1]	Adjustment to shock[1]	Post-shock growth path[1]	Type of economic resilience to the shock[2]
Idrija	1970-1977	Exogenous / economic	Falling global mercury prices Increased international competition	Mercury mining Small-scale manufacturing	Decreased production (1970-on), mine closure (1977)	Retraining of miners, public subsidies and other state-led initiatives in support of manufacturing	Increased industrialisation Internationalisation of new industries	Re-orientation / Renewal
Idrija	1991-2000	Exogenous /economic, political	Independence	Industrial specialisation (electronic industry)	Privatization, consolidation of ownership	Internationalisation of operations, technological innovations	Specialisation. International growth and acquisitions	Recovery
Idrija	2008-2012	Exogenous / economic	Global financial crisis	Sharp growth	Shorter working hours, slight unemployment, financial loans	State and EU-policy benefits, economic and social diversification	Same, with slight economic diversification (construction)	Resistance / recovery

[1] Roughly based on Regional economic resilience model by Martin & Sunley, 2015 (doi:10.1093/jeg/lbu015)

[2] Based on Martin, 2012 (DOI: 10.1093/jeg/lbr019)

4.2.5 Industrial culture in Idrija

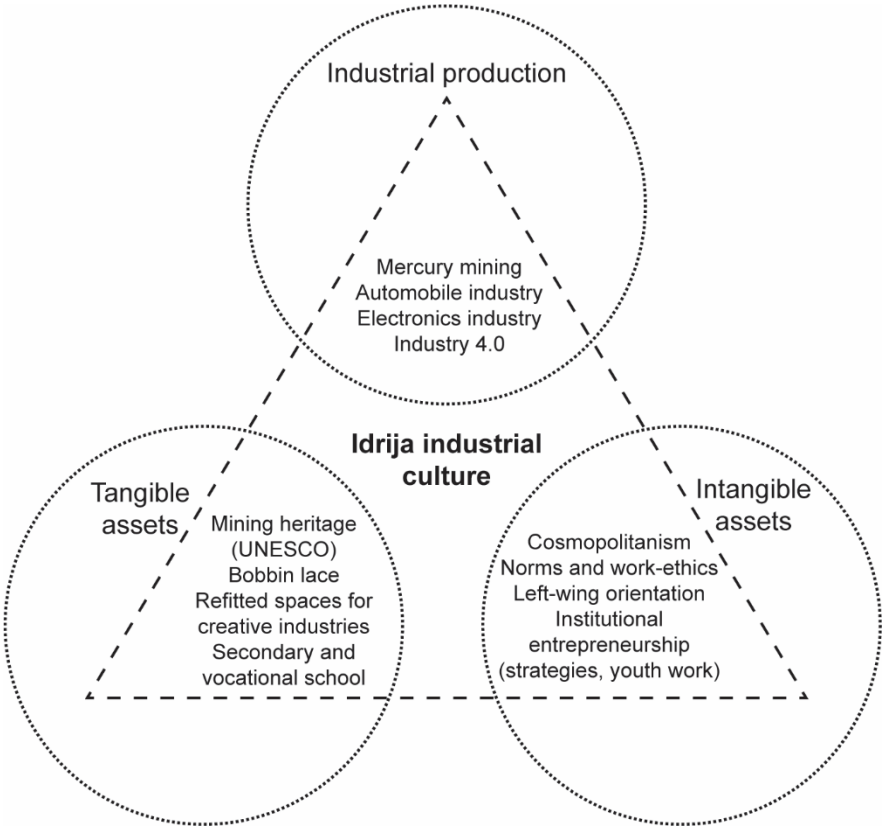

Figure 22. Distinctive elements of Idrija's industrial culture. Source: the authors.

The townscape of Idrija is marked by a 500-year history of mercury mining. In the last 20 years, institutional actors have recognized the importance of using the mining legacy to diversify the local economy (Zorn et al., 2015). This was particularly important after the 2008 global financial crisis, which exposed the dependence on two manufacturing companies. These efforts culminated in 2012 when the mercury heritage in Idrija was included on the UNESCO World Heritage List along with Spanish Almaden. There are several buildings in the town where this heritage is exhibited and which are the focus of tourist activities: Near the main square is the oldest entrance to a mine shaft in Europe (Anthony's Main Road), where guided tours of the mine and other exhibited elements of mining heritage are organized. One of the most striking features of the townscape is Gewerkenegg Castle, built in the 16th century to manage and safeguard mercury production. Today it houses the museum, which has a permanent exhibition on mercury mining and the history of the town.

Some buildings have been converted not only for tourism but also for other creative activities. One of the buildings (the Inzaghi shaft) is used as accommodation for young entrepreneurs working on 'heritage innovation' (Id20, 2021a) and is a space for (collaborative) work, meetings and exchange of ideas. Some other former mine buildings (the Francis Shaft) house public facilities such as the museum administration and are also used as meeting/conference rooms or venues for cultural events. Other sites (smelting works, water wheel and water barriers, chimney, miners' house...) are part of the UNESCO Heritage site and are used for educational and tourism purposes. The general impression of a well-maintained industrial culture is visible throughout the town. Less tangible aspects of industrial culture are also noteworthy. Lace-

making, a long-standing tradition of miners' wives, is recognized as part of cultural heritage, and there is a lace-making school dating back to 1876 (Čipkarska šola Idrija, 2021). Bobbin lace is recognized as a handicraft and is offered and sold in various shops throughout the town.

The mining tradition has become a "brand" of the town, as it is represented on all communication platforms (websites) and with physical symbols throughout the city to convey a certain image to visitors. The museum exhibition portrays a narrative of a cosmopolitan town that has excelled in technological and economic innovation in the past and continues to be successful globally today (Straus & Hvala, 2020). And although Idrija is the location of two large multinational companies, the narrative focuses almost exclusively on the mining legacy. The two companies remain unnoticed in the townscape, with few visible symbols associated with them.

The current industrial structure is reflected in the formal secondary education programs (there is no tertiary education). The oldest secondary school in Slovenia, operating from 1901, offers educational profiles for industry: Mechatronics Technician and Mechanical Technician. The same school also offers vocational training for adults to acquire skills needed by existing industry, further supported by scholarship programs offered by the two major companies. There are also less-formal initiatives, mainly by youth-led non-governmental organisations, to publicise and utilise existing skills and knowledge, such as the 'HeritageLab' or the 'Festival of industrial culture.' The former addresses the importance of heritage conservation and promotes local community revitalisation by engaging young people in discussions about how to leverage industrial culture for new entrepreneurial opportunities (Id20, 2021b).

Some norms of industrial culture such as high work ethic, collegiality, camaraderie, pragmatism and rebelliousness are also associated with mining traditions, alongside cultural codes such as 'gruffness', sarcasm and open-mindedness (Straus & Hvala, 2020). Politically, the town has a tradition of supporting the political left and traditionally elects mayors and MPs from the Social-Democrat party. Affiliations of elected mayors with the dominant company are also frequently mentioned (Dragoš, 2008). There are recent signs of political shifts; in the 2018 local elections, the independent candidate defeated the Social-Democratic candidate. The main strategic policy document is the development strategy, which highlights the cosmopolitan past and the values originating from mercury mining, and how these should transition into an innovative and knowledge-based society (Nared et al., 2017). Industry is presented positively, as an opportunity and an asset for new technological and organizational innovations. In the tourism strategy, mining heritage and lace-making are two of four pillars of future tourism development (Občina Idrija, 2019).

4.3 Case study town: Kočevje

Kočevje formally belongs to the development region Southeast Slovenia, but is geographically, functionally and economically more connected to the Ljubljana urban region. Together with Ribnica and six adjacent municipalities, Kočevje forms an informal microregion with its own development centre Kočevje-Ribnica. In recent years, Kočevje has embarked on a new development path, opening up to foreign and national investment. However, Kočevje still faces below-average economic indicators.

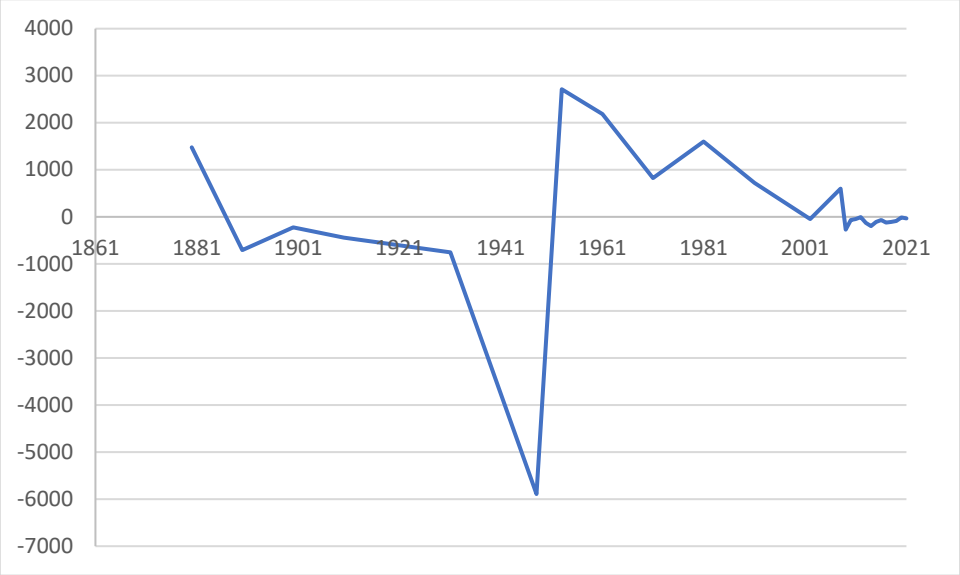

Figure 23. Absolute changes in population in Kočevje 1880–2021. Source: the authors from SURS.

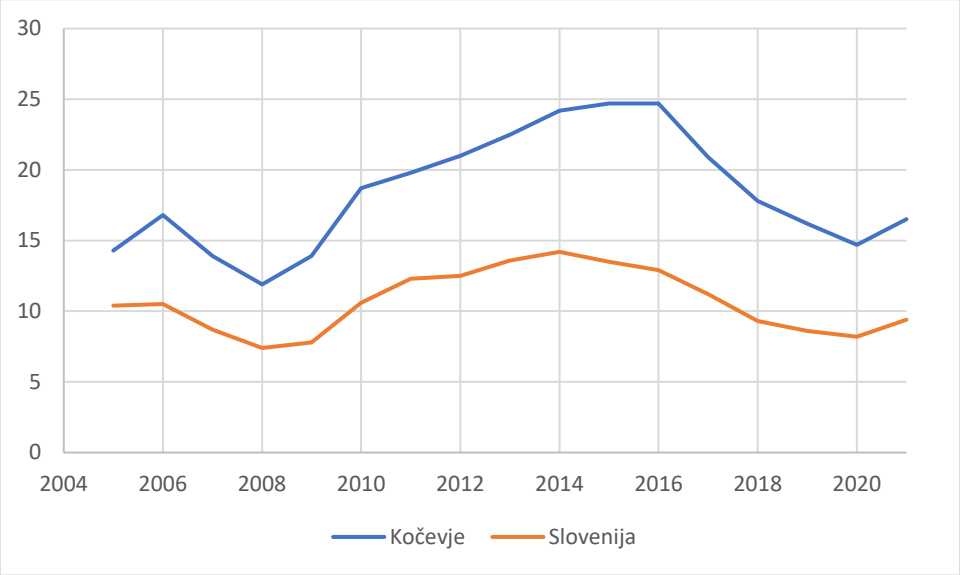

Figure 24. Unemployment rate in Kočevje and Slovenia. Source: the authors from SURS.

4.3.1 Regional institutional context

The municipality of Kočevje is located in the Southeast Slovenia development region, the largest of the 12 Slovenian development regions. Southeast Slovenia shares its southern and eastern borders with Croatia, its northwestern border with Ljubljana urban region and its northeastern border with the Central Sava region. Southeast Slovenia covers an area of 2,675 km^2 and had a population of 144,688 in 2019, which was 7% of Slovenia's total population. It is, however, the most sparsely populated region in Slovenia, with only an average of 54 inhabitants per km^2. The region is administratively divided into 21 municipalities. With 37,280 inhabitants, Novo mesto is the only city municipality, and also the main employment centre in the region. Kočevje, with 15,688 inhabitants in 2019, ranks as the second-largest centre (Development centre Novo mesto, 2020; SURS, 2021d).

The administrative borders of the Southeast Slovenia region do not reflect its functional regions. The Kočevje microregion is geographically, functionally and economically more related to Ljubljana urban region, and was included into the Southeast Slovenia region only in 2000. In 2006, 6 municipalities from Southeast Slovenia development region and 2 from Ljubljana urban region established Kočevje-Ribnica, an informal microregion with its own development centre (Lavrič, 2006).

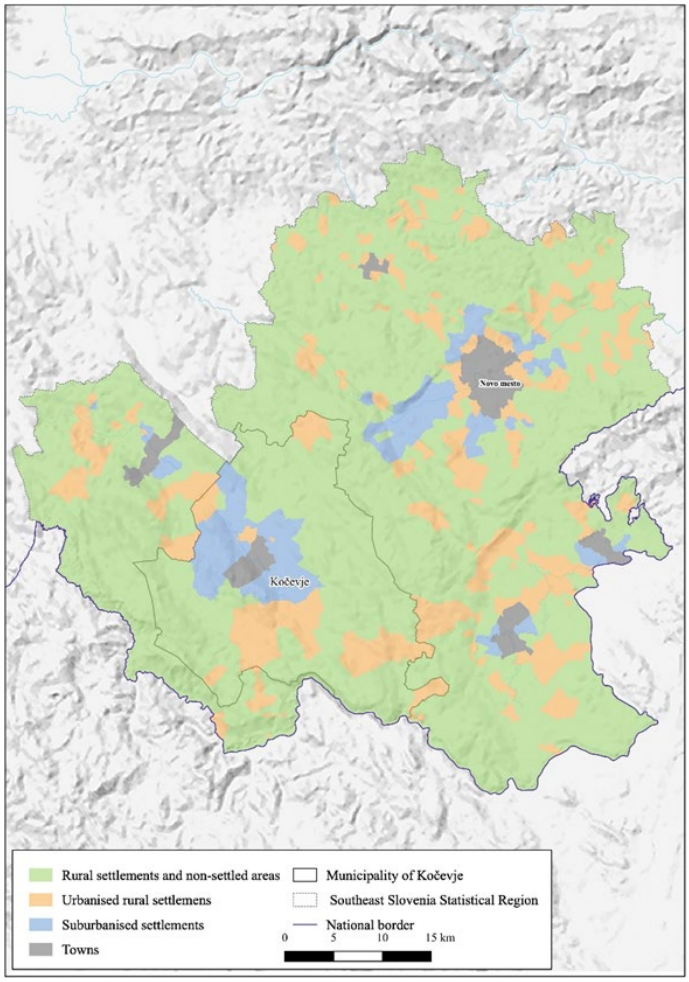

Figure 25. The Southeast Slovenia region: Settlement structure.

Kočevje and Ribnica are the most important economic and industrial centres in this microregion with several innovative enterprises, some of them with a long history. The Kočevje microregion recently started the economic restructuring process with financial support from the state. Foreign investments, especially in robotics (Yaskawa), and local investments in existing enterprises (Koles, Intersocks), have brought new development momentum. Kočevje was recognized as the fastest-developing municipality in 2018. Despite promising developments, however, the Kočevje microregion still has below-average incomes, with average net wages of 1,013 EUR, around 100 EUR lower than the Slovenian average (1,133 EUR in 2019), and unemployment rates that are twice as high (22.2% in 2016) as the Slovenian average (11.2%) (SURS, 2021d).

The most successful enterprises in the industrial sector are based in robotics (Yaskawa), the chemical industry (Melamin), the wood-processing industry (Koles), the textile industry (Intersocks), and the sustainable infrastructure and buildings industry (Riko). Despite the presence of some larger employers, the microregion has been experiencing a shortage of available jobs. Part of the working population therefore commutes to other regions, mainly to Ljubljana. The Kočevje microregion also faces out-migration from border areas to larger

employment centres both within or outside the microregion (Development centre Novo mesto, 2020).

The region of Southeast Slovenia has been traditionally known for entrepreneurship and innovativeness. Its enterprises in general are also known for nurturing a high work ethic and stable, long-term management structures with relatively weak influence of national politics. A few enterprises were bankrupted in the period of transition due to the loss of the Yugoslav market, but in some of these cases, their healthy parts continued with production (Fajfar, 2019). In this respect, Kočevje, differs from the rest of the Southeast Slovenia region and even from Ribnica, Kočevje's counterpart in the microregion. Due to the late formation of Kočevje (only after the World War II), dependence on state-owned companies and therefore weak entrepreneurial and innovation tradition, Kočevje's economy faced more transitional problems than Ribnica and the rest of the Southeast Slovenia region. Only in the last decade has Kočevje stepped on the economic path of renewal and started to facilitate and invest in economic development, and attract foreign investments (ibid.).

4.3.2 Kočevje: Regional innovation system

The Kočevje microregion's economy, entrepreneurship, innovation and development has been facilitated by the regional development agency Development centre Novo mesto and the interest-based Kočevje-Ribnica development centre. The latter was founded in 2006 with the aim to promote the economy in the municipalities of Kočevje, Kostel, Osilnica, Loški Potok, Sodražica, Ribnica (all part of the Southeast Slovenia development region), and Velike Lašče, and Dobrepolje (both in the Ljubljana urban region). Fruitful collaboration and co-funding of institutions on EU (ERDF funds), national (MGRT, SPIRIT), regional (Development centre Novo mesto) and local administrative level (municipalities) has resulted in the establishment of 4 business incubators that operate in the Southeast Slovenia region: Podbreznik, Bela Krajina, Kočevje and Kostel (Development centre Novo mesto, 2020). The Development centre Novo mesto also offers financial support for small businesses with the Warranty scheme, cofounded by the Development centre Novo mesto, the Chamber of Commerce andI Industry, and the Employment service of Slovenia (ZRSZ). The region's industry is also facilitated by educational institutions, such as the Faculty of industrial engineering (FINI) and public universities (especially University of Novo mesto and University of Ljubljana), offering professional and academic (MSc and PhD) studies, and vocational schools centre (ŠCNM, and vocational and high school in Kočevje). Despite a few exemplary good practices in the field of supporting regional innovativeness and entrepreneurship, the absence of formalized regional tier of government manifests in dispersed investments in local economic-business zones (Development centre Novo mesto, 2015).

Many internationally and nationally recognized and innovative enterprises operate within the Kočevje microregion. Some of them are also networked in SRIPs: Melamin in the chemical industry (SRIP circular economy), Intersocks in the textile industry, and Koles in the wood-processing industry. Along with a branch in Ribnica, Yaskawa – a world's leading manufacturer of industrial robots opened a branch in Kočevje in 2019 as well. It is part of the SRIP factories of the future. There is also Riko, producing high technological products for

different infrastructures such as wastewater treatment plants, hydroelectric power plants and electrical power transmission and distribution networks. Riko has also established as a sustainable wooden building construction company. It is networked in the SRIP health-medicine.

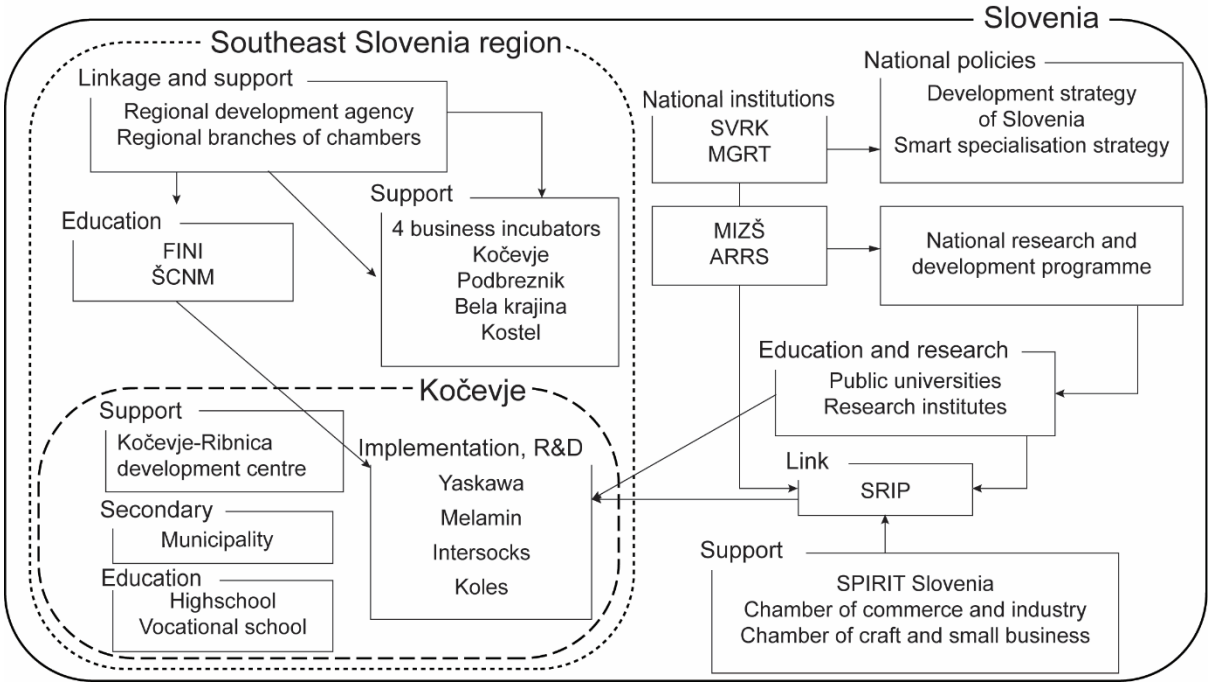

Figure 26. Southeast Slovenia's innovation system.

4.3.3 Industrial development and economic shocks in Kočevje

The Kočevje region has a special history because of its geographical isolation and the mighty, inaccessible primaeval forest. In the 14th century, the Counts of Ortenburg decided to settle rebellious German peasants. In the geographical isolation and remoteness of the region, the Gottscheers (German-speaking inhabitants of Kočevje region) preserved their customs, traditions, costumes and language from generation to generation and remained a German linguistic and cultural island in the middle of Slovenian ethnic territory for more than 600 years until World War II (Life Kočevsko, 2015). The Kočevje region was often invaded by the Turks in the 15th and 16th centuries, who made Kočevje a town in 1471. To help impoverished places, the Roman-German Emperor Frederick III of Habsburg granted in 1492 a special permission to perform untaxed trade in homemade products throughout the entire empire (Gradišnik, 2007). The privilege was confirmed several times until World War II. Between the 17th and the 20th century, crafts based on raw materials of local origin developed, including wood processing, yarn, weaving, cloth making, etc. A typical economic activity was peddling, which accelerated crafts and trade (Simonič, 1939; Ferenc, 2005).

The beginnings of industrialization in the Kočevje region date back to the first half of the 19th century, when several small industrial enterprises were established in the iron and steel industry, the wood processing industry and the glass industry, although the real beginnings of

industry were based on coal mining. In 1803, lignite coal began to be mined (Ferenc, 2005). Until 1965, the coal mine was the largest industrial plant in the region and the axis around which much of Kočevje's life revolved (Jerbič Perko, 2005). The textile industry, resulting from the needs of the Slovenian and the larger Yugoslav market, also played an important economic role (Jerbič Perko, 2014). Industry used wood as an auxiliary raw material for the production of glass and iron products, but the development of the forest and wood economy lagged behind due to poor transport links (Ferenc, 2005). In 1893, the Ljubljana-Kočevje railway line was opened, which ensured greater coal transport for the mine. The railway enabled the construction of new and larger sawmills in the Kočevje forests. The increase in coal mining attracted many miners who immigrated with their families. Most of them were Slovenes (Ferenc, 2005). After the collapse of the Austro-Hungarian Monarchy, the coal mine began to decline. After 1919, it employed up to 1,200 workers and miners, and after the Great Depression and in 1930, sometimes even less than 100. Due to the sinking and destruction of many mining facilities, extensive effort and restoration work was required after World War II to allow coal mining to continue. The population of Kočevje was relatively stable at about 15,000 from the first census of the Habsburg Monarchy in 1869 until World War II.

The first shock for Kočevje occurred during and immediately after World War II, when there were major regional changes in population, personal property, economic and political order. In April 1941, the Slovenian territory was divided between Germany, Italy and Hungary. Italy took control of Kočevje, whereupon Hitler's leadership issued an order that all Gottscheers who considered themselves Germans should emigrate to their old homeland (Gorjan-Borko, 1965). In the winter of 1941-1942, 11,509 people from 176 settlements emigrated in this way (Life Kočevsko, 2015). Thus, the majority of the population left Kočevje and its surroundings, including almost all Germans. In the summer of 1942, the Italian occupiers organized a major offensive. It caused great devastation as they burned and destroyed abandoned villages in the Kočevje region because they provided shelter for partisans (Ferenc, 2005). The town was also bombed as many as twenty-two times and was one of the hardest hit towns during the war in Slovenia (Bernik, 1969). By the end of the war, the industry was almost completely destroyed. The first post-war census in 1948 counted only about 8,000 people in Kočevje.

A new socialist government nationalised most of the territory of the Kočevje region and assigned Kočevje a special role in 1945. The Kočevje region was the area that experienced the greatest changes in the social composition of the land in Slovenia after the war (Gorjan-Borko, 1965). For national and economic reasons, the new government did not allow the reconstruction of the destroyed and burned villages of the Gottscheers, but rather deliberately destroyed their cultural heritage. New inhabitants from all over Slovenia and the former Yugoslavia settled in the town, while large areas in the hinterland remained empty (Life Kočevsko, 2015). In the 1970s, the population of the town reached pre-war levels. It grew to about 16,000 people by the 1990s and has not changed significantly since. In a territory with extensive private farmland, the authorities introduced an ambitious socialist economy with a different farming method that changed the shape, size, and use and ownership of land (Gorjan-Borko, 1965). Until Slovenia’s independence in 1991, the main industries were mining, wood and textiles, which were renewed after the war, while transport and chemicals emerged as new industries. However, today the only company that survives from this period is the Melamin chemical factory. Until 1965, the coal mine was the strongest industrial enterprise, employing up to 1,000 people. The open pit mine closed in 1961, and due to lack

of supply, the mine was abandoned in the early 1970s and closed in 1978. Retraining of the redundant workforce, and thus job creation, was largely carried out by the developing company of transport vehicles ITAS (Ferenc, 2005). Other companies developed from craft workshops due to the needs of post-war reconstruction and available raw materials and land (Jerbič Perko 2014). After the war, the number of artisans and crafts declined. Trade was in the hands of agricultural cooperatives. Peddling was severely suppressed by a series of restrictions (Ferenc 2005).

The second shock followed in 1991 with the disintegration of the Socialist Federal Republic of Yugoslavia, when Slovenia became an independent state. This triggered a severe economic crisis in Kočevje, during which the former giants of local industry collapsed. Even before independence, ITAS, which employed more than 1,000 people in its heyday, was on the verge of bankruptcy. Its activity is still continued by the company ITAS-CAS today, but on a much smaller scale with 100 employees. The core of the industry in Kočevje today is comprised of ITAS-CAS, Melamin (180 employees) and Rotis (around 100 employees). Since 2016, Kočevje has also been the seat of the state forestry company Slovenski državni gozdovi (SiDG, around 150 employees). SiDG is the majority owner of Snežnik, another forestry company in Kočevje (around 150 employees). The post-independence period was thus characterized by a high unemployment rate (at times exceeding 20% and among the highest in Slovenia) and increased daily commuting to other employment centres (Fajfar, 2013). Based on information from Employment Service of the Republic of Slovenia, the problems of the local labour force consist mainly of an unfavourable educational structure, low skill levels and long-term unemployment. According to stakeholders, the main obstacles to development include a lack of cooperation and integration, a negative attitude towards private entrepreneurship, great apathy, and unwillingness to take initiative (Fajfar, 2013; 2014).

Two development and supportagencies were created to overcome these barriers. In 2006, Razvojni center Kočevje Ribnica d.o.o. was founded by eight municipalities, including the municipality of Kočevje, with the aim of promoting entrepreneurship and development of Kočevje and the wider region. In 2008, the business incubator Podjetniški inkubator Kočevje was established by the municipality of Kočevje. In addition, the municipality of Kočevje participated in one national and one European territorial development program. In 2011, the Government of the Republic of Slovenia adopted a Decision on Additional Temporary Development Support Measures for the Problem Area with High Unemployment – Pokolpje, in which the municipality of Kočevje and surrounding municipalities were included. In the same year, the Program for the Promotion of Competitiveness and Development Support Measures for Pokolpje for the period 2011-2016 was adopted, and its implementation was subsequently extended until 2020. The municipality of Kočevje also actively participates in the LEADER program, an initiative of the European Union and an integral part of the Rural Development Program. Despite these efforts, unemployment in the municipality of Kočevje is still around 24 % and almost a half of the labour force daily commuted elsewhere in 2014 (Fajfar, 2014).

In recent years, there has been positive momentum in the areas of industrial development, education and transport connectivity. Foreign investment of the Japanese company Yaskawa, the world's largest manufacturer of industrial robots, has begun to create new jobs. Yaskawa started its production in Slovenia in 1996 in the neighbouring town of Ribnica. The investment was also financially supported by the state (Gole, 2018). Yaskawa chose Kočevje as the first

location in Europe for the production of robots. Trial operations started at the end of 2018, and around 250 jobs are planned (Gole & Rajšek, 2018). This development momentum in Kočevje is followed by the adaptation of education, as a mechanical engineering technician program was introduced after 15 years in 2017 (Gole, 2018) and a higher education program of mechatronics started in 2019 (Short-cycle Higher Vocational College 2021). In addition to Yaskawa, Koles, Gozdarstvo Grča, Rotis and Intersocks have also recently announced job growth, creating about 700 new jobs (Gole & Rajšek, 2018). The latest achievement is the improvement of the Ljubljana-Kočevje railway connection. In early 2021, a passenger train has started to run on this route again after more than 50 years.

4.3.4 Economic shocks in Kočevje – General overview

Town	Estimated time frame	Type of shock	Cause of shock	Pre-shock growth path[1]	Reaction to shock[1]	Adjustment to shock[1]	Post-shock growth path[1]	Type of economic resilience to the shock[2]
Kočevje	1941-1945	Exogenous / political	Outmigration of Gottscheers, occupation and bombing during WWII, socialist revolution	Coal mining, textile industry, iron and steel industry, wood-processing industry, glass industry	Depopulation, destruction of industry	Nationalization of land and economy, immigration of new inhabitants from Slovenia and Yugoslavia, "socialist" industrialisation	Coal mining, textile industry, wood-processing industry, transport industry, chemical industry construction industry	Renewal
Kočevje	1991-2017	Exogenous / endogenous / economic slow burn	collapse of large industrial companies, loss of ex-Yugoslav markets, suppression of crafts and private initiative, poor educational structure	Textile industry, wood-processing industry, transport industry, chemical industry construction industry	High unemployment, daily commuting to other centres	Establishment of two development and counselling agencies, cooperation in two development programs, foreign investment, enhancement of education and transport infrastructure	Robotics, textile industry, wood-processing industry, chemical industry	Resistance, re-orientation

[1] Roughly based on Regional economic resilience model by Martin & Sunley, 2015 (doi:10.1093/jeg/lbu015)

[2] Based on Martin, 2012 (DOI: 10.1093/jeg/lbr019)

4.3.5 Industrial culture in Kočevje

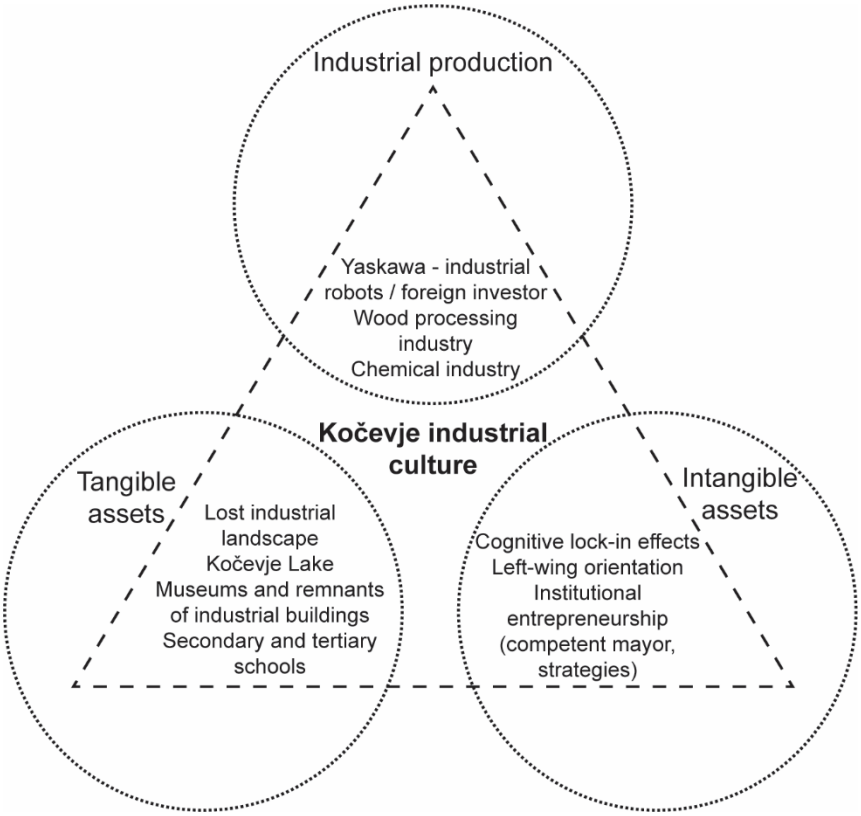

Figure 27. Distinctive elements of Kočevje's industrial culture. Source: the authors.

Industry in Kočevje had a strong developmental role in the past. However, the industrial landscape has largely been either lost or restructured. The reasons for this can be traced to the collapse of the Yugoslavia in the early 1990s, economic crisis and the absence of a clear strategy to protect industrial heritage resulting from the lack of a population with tradition and local history. Despite the important textile and chemical heritage, most of the factories have either been demolished (Tekstilana), retrofitted for other industrial activities (shopping centre) or renovated for newer production (Melamin).

The most distinctive industrial townscape element is the Kočevje Lake, which is a flooded area of a former opencast mine of lignit coal. In recent years, the lake has become one of the main tourist attractions of the Kočevje region, which is promoted through local tourist websites, posters and brochures (Kočevsko, 2019). Surprisingly, despite a long tradition, almost nothing remains of the mine (Brate, 2005). The exceptions are some buildings and monuments associated with mining: the rarely preserved separation buildings, the decaying mining colony (Glavonjić, 2011), a former urban building of a mine, and a monument to the injured miners.

The development of the industry was greatly influenced by the railway, which came to Kočevje in 1893 (Ferenc, 2005). In 2021, the renovated Ljubljana-Kočevje line was opened, and its important role is evidenced by the old restored locomotive at the railway station in Kočevje. The railway was also influential in the production and sale of wood, which is abundant in the Kočevje region. Some remains of buildings of the sawmill in Rog, where several hundred people worked between 1894 and 1932 (Brezpotja, 2013), have been preserved. In the

museum it is possible to see a model of the former condition of the sawmill. In 1910, the tallest building in the Kočevje region, which the locals called the “skyscraper,” was built to house the workers of the sawmill in Kočevje. Due to its architecture and height, the building still represents an architectural local feature (Nebotičnik občine Kočevje, 2021). Kočevje was the first town in Slovenia to have public lighting. A power plant was built in 1896, and the building is an industrial architectural monument, which operated as a reserve until 1954 (Brate, Kordiš, & Škufca, 1996).

The centre of cultural events, exhibitions, professional meetings and publications in Kočevje is the Šešek Home, a modernist-functionalist building. It was built between 1937 and 1938 and since 1963 it has housed the Regional Museum Kočevje. The museum prepares and promotes numerous exhibitions, including topics on industry (Jerbič Perko, 2014) and mining (Jerbič Perko, 2005).

The current industrial structure is reflected in formal secondary and tertiary education programs. After 15 years, a mechanical engineering technician program was introduced in 2017 (Gole, 2018) and a higher education program of mechatronics combining three different fields – mechanical engineering, electrical engineering and informatics – started in 2019 (Short-cycle Higher Vocational College 2021). There is a lot of interest in enrolling in these two programs because students already associate them with potential employment at a corporation like Yaskawa (Gole & Rajšek, 2017). Industrial activity and employment growth are further supported by two development and counselling agencies (Razvojni center Kočevje Ribnica d.o.o. and Podjetniški inkubator Kočevje). Their role is to overcome cognitive lock-in effects manifested in a lack of cooperation and integration, negative attitudes towards private entrepreneurship, great apathy and unwillingness to take the initiative (Fajfar, 2013; 2014).

Politically, Kočevje has a tradition of supporting left-wing parties. The town had a special role and regime during and after World War II. In the autumn of 1943, Kočevsko became the centre of the liberated territory, and the city of Kočevje became the place of the first Slovenian Assembly of Delegates. In 1948, Yugoslavia came into conflict with the Soviet Union (Informbureau). At first, there was a threat of a new war. This led to the establishment of a project that provided protection and shelter for the top leadership in Yugoslavia and in the individual republics. The most suitable area in Slovenia was the Gotenica-Reka plateau in the Kočevje region, because it offered a quick retreat to central Bosnia or to the sea and further in case of an attack. This area played an important role again in 1991 when Slovenia seceded from Yugoslavia after a 10-day war. The Kočevje region was a large training ground used for police and especially military training of the new Slovenian armed forces, covert storage of military equipment, testing of weapons and materials and the establishment of a collection centre for captured Yugoslav soldiers. The infamous closed area of Kočevska Reka was an additional help, as it was a great unknown to the Yugoslav political and military leadership (Kovačič, 2011). Despite the long tradition of left-wing political orientation, there are signs of political shifts towards the centre. Since 2010, the mayor has been an independent candidate, advocating for balanced economic, social and environmental development.

The municipality does not have an overarching strategy. The municipal strategy for economic development is being prepared. However, Kočevje has 21 strategic documents encompassing different fields of public life and development, such as culture, sport, youth, smart city, safety

and security, tourism, transport, energy, education, etc. Industry is explicitly addressed in the strategic plan to promote competitiveness of forestry and wood processing in the region. Industry is also mentioned in the smart city strategy in the context of industry 4.0 and IoT, in the tourism strategy pertaining to renovation of old industrial buildings for accommodation facilities and development of wood products as souvenirs, and in the secondary education strategy in relation to collaboration with local companies (Občina Kočevje, 2021).

4.4 Case study town: Trbovlje

Trbovlje is the largest town in the Central Sava development region. It is a traditional former mining town, which today faces several structural problems, among them high unemployment, health problems, low average income, environmental problems. The state has financially supported the mine closure and economic restructuring, but the process of economic and social transformation and environmental recovery from mining and heavy industry is rather slow. However, some high-tech companies suggest that Trbovlje may have embarked on a new path of transformation.

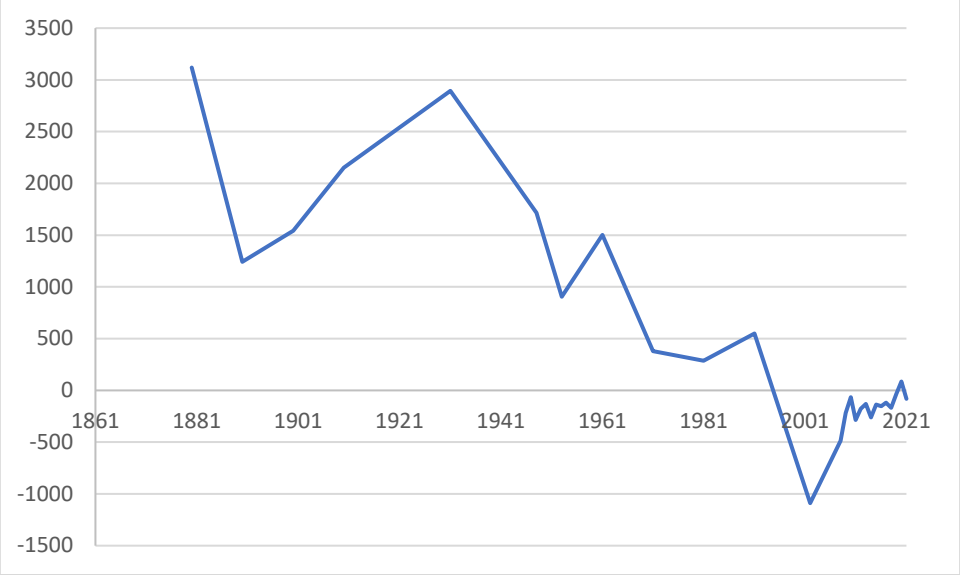

Figure 28. Absolute changes in population in Trbovlje 1880–2021. Source: the authors from SURS.

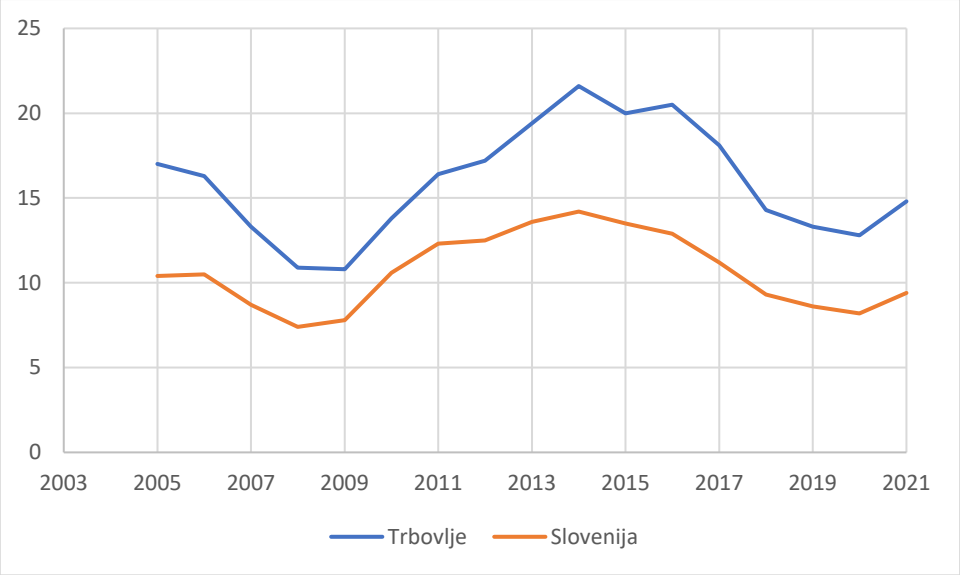

Figure 29. Unemployment rate in Trbovlje and Slovenia. Source: the authors from SURS.

4.4.1 Regional institutional context

The Central Sava region is the smallest of the 12 development regions in Slovenia. It is a traditional industrial and coal-mining region east of the Ljubljana urban region. Central Sava covers an area of 485 km^2 and had a total population of 57,059 inhabitants in 2019, which is 3% of Slovenia's total population. It is, however, the third most densely populated region with an average of 118 inhabitants per km^2. It comprises four municipalities, Hrastnik, Litija, Trbovlje and Zagorje ob Savi. The region's largest town is Trbovlje, with 58 km^2 and 16,037 inhabitants in 2019. With 12,287 EUR in 2019, the region's GDP per capita is the lowest in Slovenia, only slightly more than half of the national average and only 1.4% of Slovenia's total GDP. Social indicators for the region are unfavourable, with the highest risk of poverty rate at 16% (Zasavje Regional Development Agency, 2019; SURS, 2021e).

Despite the beginnings of coal exploitation in the 17th century, the coal mining industry in the Central Sava region did not develop until the early 19th century due to poor transport connections and a lack of coal consumers. Coal became an important resource in the second half of 19th century, primarily after the construction of a railway that enabled its export. Other ores, such as lead, zinc and iron were also important in the region and influenced industrialisation (Hrvatin, 1998). After World War II, coal mining fostered industrial development in the region (Hrvatin, 1998). Industrialization was followed by population growth and urbanization which reached 60% by the 1990s. Demand for workers exceeded the available labour force, stimulating intensive in-migration in the 1980s, primarily from other Yugoslavian republics (Vrišer, 1960; Vrišer, 1963). Today, mines have been closed, leaving the Central Sava region as one of the most environmentally degraded regions in Slovenia. Although living conditions have improved in the last decades, the overall quality of life has remained low (Kušar, 2004). In 2000, the law of the gradual closure of mines in the Central Sava region provided state aid for economic restructuring of the region between 2000–2006

(Uradni list RS, 2000). The funds were intended to facilitate new economic activities and entrepreneurship with appropriate spatial conditions and infrastructure (ibid.). Despite this, the region's economy has continuously lagged behind the majority of other Slovenian regions. Since Slovenia lacks an elected regional tier of public governance, there has been increasing municipal competition for regional policy funding (OECD, 2011b). Investments are thus small-scale and dispersed instead of concentrated and competitive (Nared et al., 2019). Funds allocated for development projects in the Central Sava region were often used for small municipal investments, which did not significantly contribute to the development and competitiveness of the region as a whole (Fain, 2005). The project of a regional industrial zone as a regional development project also failed due to unresolved land-ownership structure and lack of collaboration among enterprises (Koritnik, 2017). The results of these small-scale development projects are slow regional economic restructuring and failed industries.

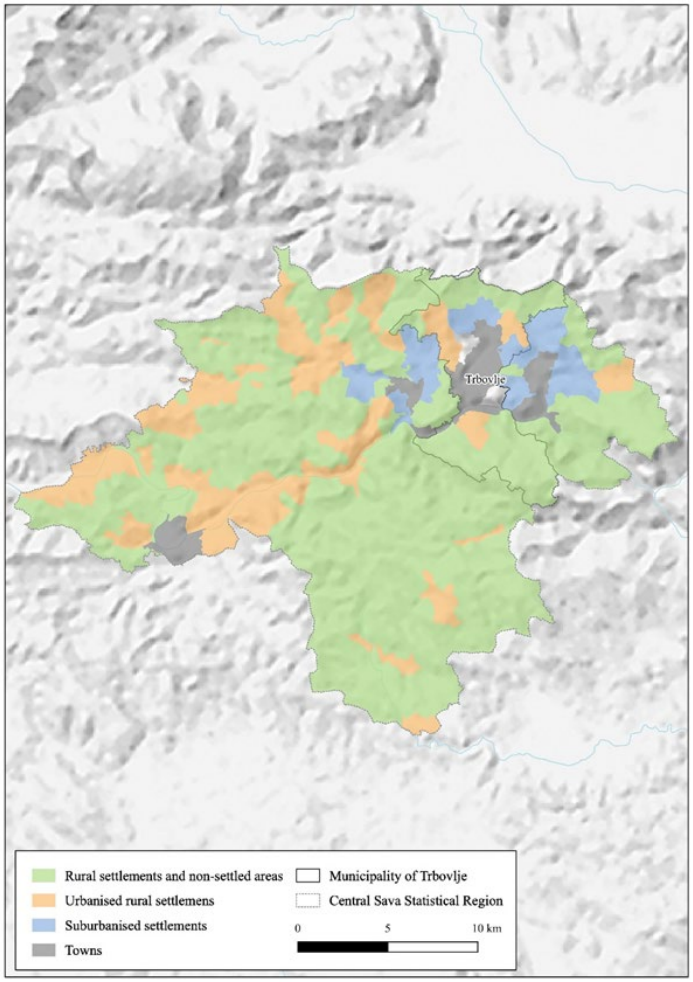

Figure 30. The Central Sava Region: settlement structure.

The Central Sava region faces the consequences of economic decline after the closure of coalmines and the associated industries in past decades. Failed economic restructuring and negative demographic trends are accompanied by adverse environmental conditions (Zasavje Regional Development Agency, 2019). Although the region received state aid between 2001–2006 for economic restructuring with some positive effects (Fain, 2005), the discontinuance of

state aid and the global economic crisis again triggered negative economic trends (Zasavje Regional Development Agency, 2019). Due to deficient job opportunities, more than 50% of workers from the region commute daily, mostly to Ljubljana. With 1,033 EUR, the average net wage in the region in 2019 was among the lowest in the state and approximately 100 EUR lower than national average (Zasavje Regional Development Agency, 2019; SURS, 2021e).

As Kušar (2004) states, the Central Sava region is characterized by the socialist ideology of the former state of Yugoslavia, which encouraged industry and mining and defended the rights of the working class. After Slovenia declared independence, the regional economy lost its Yugoslavian market, and the working-class population lost its role in society, leading to economic decline of the region. With the strengthening discourse of sustainability, restructuring of the economy, the region failed to adapt to the new socioeconomic context. Despite economic crisis and high unemployment rates, people have remained passive and expect incentives (culture of dependency), especially from the state. The region has also faced brain drain and increasing social problems (ibid.).

4.4.2 Trbovlje: Regional innovation system

The main regional level institutions that provide support to regional economy, entrepreneurship, innovation and development are the Regional development agency Zasavje, and the regional branches of the Chamber of Commerce and Industry and the Chamber of Craft and Small Business. Despite unfavourable economic indicators, the region has seen a slight increase in the number of enterprises as well as their income, but average wages have remained the lowest in Slovenia. Moreover, the number of employees per enterprise has dropped (Zasavje Regional Development Agency, 2019). There are, however, few larger successful and innovative firms in the Central Sava region in the paper industry (Radeče papir nova), the production of electricity distribution apparatus (Eti Elektroelementi), foundry (Telkom), software production (Dewesoft), the production of electronic components (Diotec Semiconductor), glass production (Hrastnik) and environmental research (Chemical-technological laboratory as part of Regional technologic centre Zasavje) (Koritnik, 2017). Some enterprises from Trbovlje comprise SRIPs and are strongly connected to public universities and research institutes, e.g. Telkom (SRIP smart buildings and home), Diotec semiconductor (SRIP factories of the future) and Dewesoft (SRIP circular economy).

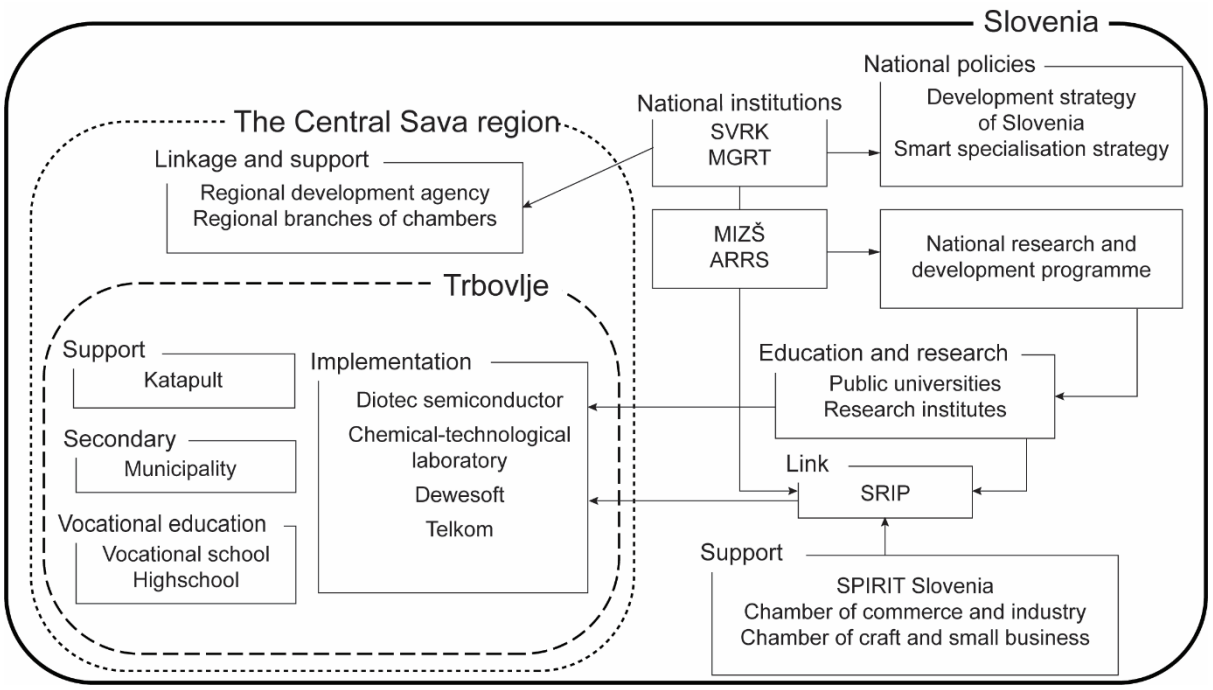

Figure 31. The Central Sava region's innovation system.

4.4.3 Industrial development and economic shocks in Trbovlje

Trbovlje is a small former mining town. Coal extraction started in 1804 and intensified during the construction of the Vienna–Trieste railway from 1841 to 1857, when the territory of Slovenia was ruled by the Habsburg monarchy. The mining industry stimulated industrialization and intense urbanization. The population of Trbovlje grew rapidly, especially due to in-migration from agricultural hinterlands (Vrišer, 1963). Several industries developed in the 19th century, including cement production, machinery production, and thermal power (Vrišer 1963). Trbovlje and its greater area became the industrial core of Slovene territory. As is typical for industrial areas dominated by coal mining (Massey, 1994), the employment structure was limited predominantly to the male workforce. Economic rise and intense urbanisation continued between and after the two world wars. In the record year of 1929, the Trbovlje mine and other mines in Zasavje supplied one third of Yugoslavian coal demand (Marot, 2003). In the postwar period, industrialization in Trbovlje continued, as well as in-migration, mainly from other Slovene cities and other Yugoslavian republics (Hacin et al., 2001). After 1991, Trbovlje faced a long-term economic decline of its traditional industries, such as coal extraction and manufacturing. The transition to a market economy after Slovenian independence caused various structural problems, including unemployment, population decline, and environmental degradation (Hacin et al., 2001; Hacin, 2017).

The first shock in Trbovlje was a miners' strike from January 13–16, 1958. Trbovlje, a town where the majority of the male workforce was employed in coal mining, had a long history of strikes. Struggles for better living conditions for workers and the potential for organisation and political mobilisation are inherently high in such communities (Massey, 1983). However, the

1958 strike was unique in that it was the first labour strike in Yugoslavia, involving almost 5,200 miners (Skopec, 2007; Rudnik …, 2021). The strike contradicted the socialist political system of self-governance, which did not know the concept of strike. In a system where workers have declaratory power, it was theoretically pointless for workers to strike against themselves ("*factories to the workers*", one of the basic slogans of socialism), yet in reality workers had far from any influence on important decisions in the enterprises.

The strike was triggered by the non-payment of the 13th wage. Miners opposed their generally poor standard of living and the excessively low purchase price for coal from Trbovlje, which was regulated by the Yugoslav central government in Belgrade, as well as the slow technological development of the mine (Skopec, 2007). The Yugoslav political authorities attached political significance to the strike, fearing that this labour mobilisation posed a threat to the Yugoslav political regime. Although the strike was a local phenomenon, it developed into the first real conflict in the Yugoslav Communist Federation and in society in general, marking the end of its monolithic structure. Political leadership was prepared to suppress the strike with military force. The response to the strike was typical of the politics of the time. The Yugoslav federal minister for mining had to resign. The miners achieved their demand for the 13th wage, but the whole event was hushed up by the politicians. The media was not allowed to report on the event and the mine and municipal management was transferred and demoted to other jobs in factories and other organisations across the country. Instead of the Trbovlje mine, the authorities developed the mine in Velenje and the nearby Šoštanj thermal power plant, which today produces 1/3 of electricity in Slovenia. The direct right to strike was not established until the 1980s (Škerl Kramberger, 2009).

The second shock hit the economy of Trbovlje in 1991, when Slovenia declared its independence. The transition to a market economy first affected the industries established after the World War II, the so-called “women’s factories.” Those were established in accordance with the Yugoslav Constitution of 1946. The planned economy formally established gender balance in the labour force and enabled the economic and financial emancipation of women. Equality in Trbovlje, where the traditional division of labour between men (the breadwinners) and women (the housekeepers) was firmly entrenched, was achieved through the targeted development of industries that employed mainly women (Hacin, 2017). In Trbovlje, three large factories employed female workers: Peko (shoemaking), Iskra (semiconductor production) and IPOZ (production of protective equipment). The allocation of Peko and Iskra from other industrial towns to Trbovlje was a political rather than a strategic economic decision. It was not based on the availability of resources, the surplus of trained and educated personnel, industrial tradition or other established economic principles. Instead, it was institutionally and financially supported by the state. The employment office in Trbovlje facilitated vocational training for women, and the municipality co-financed the construction work and supported this process through land-use planning instruments, construction documentation and social protection (childcare and housing for employees). Women from Trbovlje were also trained in parent companies, e.g. in Tržič (Peko) and Kranj (Iskra) (Hacin, 2017). This process of politically planned industrial allocation forced companies to uneconomically disperse production and become indebted. Moreover, the newly built factories were technically obsolete with low labour productivity. With the transition to a market economy after 1991, the women's factories became unprofitable and in debt. They also lost their majority Yugoslav market and had an unfavourable ownership structure, which consisted mainly of

financial institutions and public bodies without appropriate knowledge or traditions in the industry. The first factory in Trbovlje to go bankrupt was Iskra Semicon (semiconductor industry) in 1996, followed by IPOZ (protective equipment industry), which had enough orders, but the owners decided to stop production due to debts. The Peko shoe factory survived the longest, closing in 2002 (Hacin, 2017).

The third shock entails a nexus of the decline of heavy industry in Trbovlje and the rise of the environmental movement. The turning point was the 1999 referendum on the expansion of the thermal power plant. The majority of voters (with a low turnout) rejected the third power plant unit and curbed further development of Trbovlje as an energy production town. This decision initiated the long-term closure of the coal mine, as there was no longer a reason for coal production (Hlastec, 2017). Trbovlje became part of the so-called “areas with developmental problems,” which were subsidised by the state with regional development funds to promote economic restructuring and recovery. The process of mine closure began in 2000 with the "Act Regulating Gradual Closure of the Trbovlje-Hrastnik Mine and the Economic Development Restructuring of the Region", which was extended until 2015. The Act formed the basis for financing the mine closure process, compensation for damage to agricultural land caused by the thermal power plant and financing development projects (Uradni list ..., 2000). It was implemented without a clear strategic outlook on concrete future economic development opportunities and diversification (Zasavje ..., 2019).

In the 2000s, civil society opposition to the retention and further development of the air-polluting industry in Trbovlje intensified (Gabrič et al., 2018). Local civic initiatives and NGOs from Trbovlje and neighbouring municipalities have been warning the authorities about the dangerous air pollution for decades. The main polluter of Trbovlje was the French company Lafarge cement, which bought a cement plant in Trbovlje in 2002 that had been in operation since 1876 (Malovrh, 2004). The company illegally incinerated health-hazardous waste, which led to a long-standing legal conflict between the local environmental NGO Eko krog from neighbouring municipality of Zagorje ob Savi, the cement company Lafarge and the state (Malovrh, 2008). Tacit political support for Lafarge ended in 2014 when the national Environmental Agency did not grant Lafarge an environmental permit (Malovrh, 2015).

Despite the development of some successful small and medium high-tech companies in recent decades (e.g., Dewesoft, Diotec-semiconductor, Chemical-technological laboratory, Telkom), Trbovlje remains a mining town with deep-rooted structural problems, reflected in a consistently high unemployment rate, population decline, health problems and environmental degradation (Zasavje ... 2021; Stat.si, 2021). The meagre local response to economic shocks in Trbovlje reflects the former industrial structure based on coal mining and manufacturing, which was largely politically and ideologically driven, rather than the result of industrial culture, tradition or innovation.

4.4.4 Economic shocks in Trbovlje – general overview

Town	Estimated time frame	Type of shock	Cause of shock	Pre-shock growth path[1]	Reaction to shock[1]	Adjustment to shock[1]	Post-shock growth path[1]	Type of economic resilience to the shock[2]
Trbovlje	1958	Endogenous / economic, political	Regulated low prices of coal; non-payment of the 13th wage	Mine-related industry (coal extraction, cement plant, thermal power plant, etc.)	13th wage; demotion or transfer of management structures	Investments in rival Velenje mine and Šoštanj thermal power plant	Same	Resistance
Trbovlje	1991–2000s	Exogenous / economic slow burn	Transition to market economy; market loss, indebtedness, ownership structure	Mine-related industry, women's factories (shoes, textile, semiconductors)	Liquidation of predominantly women's factories	Unemployment	Unemployment; Outmigration	Resistance
Trbovlje	1999–present	Exogenous / economic slow burn	The rejection of state investments in the thermal power plant on the referendum	Mine-related industry	Phasing out energy production and coal mine closure	Maintaining minimal energy production; incentives for mine closure and economic restructuring	Few high-tech industries (data acquisition, aluminium casting, semiconductor); environmental awareness and closure of cement plant	Re-orientation

[1] Roughly based on Regional economic resilience model by Martin & Sunley, 2015 (doi:10.1093/jeg/lbu015)

[2] Based on Martin, 2012 (DOI: 10.1093/jeg/lbr019)

4.4.5 Industrial culture in Trbovlje

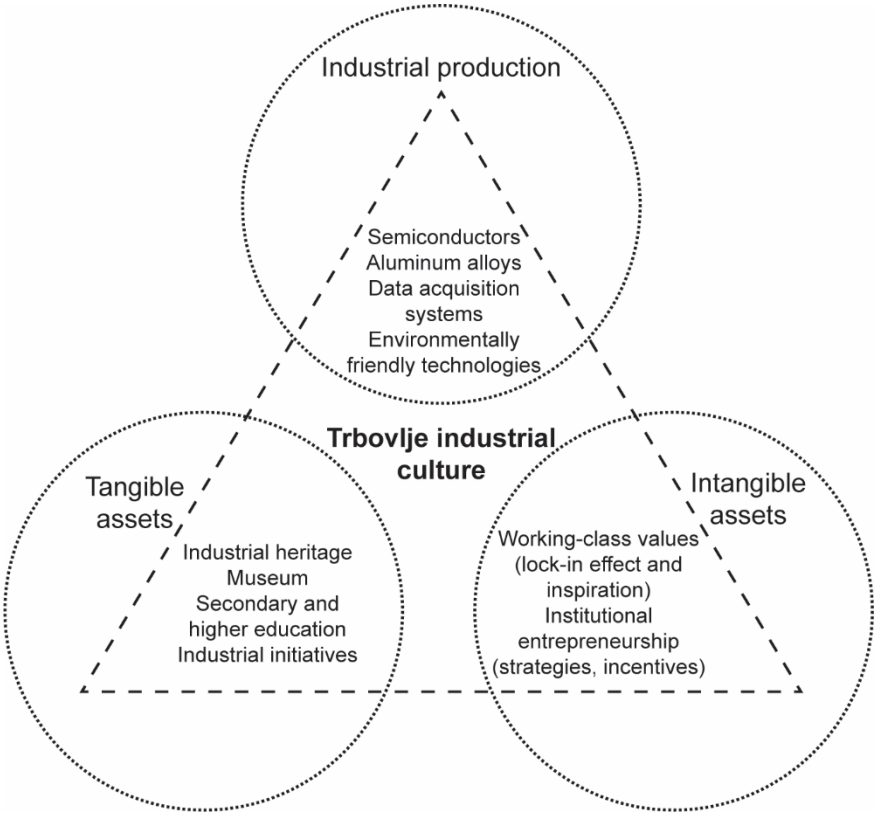

Figure 32. Distinctive elements of Trbovlje's industrial culture. Source: the authors.

The townscape of Trbovlje has a more than 200-year history of coal mining and other related industries, which have declined in recent decades. The chimney of the thermal power plant is the tallest in Europe (360 m) and one of the most famous buildings in Trbovlje. Some old factories have been renovated and reused by new companies, while many of them have fallen into disrepair and are poorly maintained (e.g., IPOZ) or have been demolished (e.g., machine factory STT). The building of the former semiconductor factory Iskra was renovated and hosts a Trbovlje's flagship company, Diotec Semiconductor, and a "fablab" Katapult, established by Dewesoft to support and implement new innovative industrial initiatives. Dewesoft, the second leading industrial company resides in the adjoining building, a former shoe factory Peko. The cement plant, owned by Lafarge, leased part of its facilities, including a disused swimming pool, to the initiative for creative industries PUNKT. One of their main tasks is to create a list of vacant industrial buildings and fill them with new content (Bučar & Ogrin, 2012).

The industrial heritage, especially the mining and industrial tradition and the traditional way of life of the miners, is presented by the Museum in Trbovlje in its permanent exhibitions. The museum also offers ethnological tours of the miners' housing colonies in Trbovlje. The cement plant offers its own guided tours of the industrial heritage. Industrial and mining traditions were also expressed through art and the industrial development path itself. The values of the (industrial) working class, which was very strong in Trbovlje, and the ideologies (such as socialism and totalitarianism) on which the town of Trbovlje was based, were critically

questioned by the world-famous music and artist collective Laibach, which was founded in Trbovlje in 1980. Due to their critical and provocative stance, the group's concerts and artistic actions were banned several times by the Yugoslav political regime, including their first concert in Trbovlje (Laibach, 2021). New initiatives and industries in Trbovlje indicate that values such as solidarity, collectivity, mutual help, rebellion, participation, respect, and empathy, which were typical for the proletarian working class (e.g. miners, their work ethics and workers' strikes history), were transferred to the young generation. New initiatives in Trbovlje that have emerged in recent decades, such as Katapult, a major accelerator of development, innovation and industrial production in Trbovlje founded by Dewesoft, and PUNKT—Laboratory for Creative Industries, were inspired by these values. Katapult and Dewesoft also help young people develop their ideas and provide mentors who pass on the expert knowledge and experience of the older generation to the younger (Dewesoft, 2021; PUNKT, 2021).

Trbovlje's industrial transition path is facilitated by formal and informal education. In cooperation with the local Chamber of Crafts and Entrepreneurship, schools try to instill an entrepreneurial mindset as early as in elementary school. The secondary school and high school in Trbovlje have been struggling with a decline in student numbers in recent decades. As a result, the municipality and schools have tried to keep young people in the region as long as possible by expanding the educational programmes with courses, entrepreneurship internships and lifelong learning training. They also partner with local business leaders to tailor educational programmes to meet the needs of emerging industries, including computer science, mastery exams, courses, and on-the-job technical training. Both the high school and the vocational secondary school offer an entrepreneurship programme, Junior Achievement Young Enterprise (Strategija …, 2014). The Workers' Home of Trbovlje, a cultural institution, is making efforts to bring tertiary education programmes to Trbovlje. In cooperation with the University of Ljubljana Faculty of Computer and Information Science, and the Academy of Fine Arts and Design, the study programme "Computer and New Media" was established and has been open to students since 2010/2011. Eventually, the study programme should move to Trbovlje. The study programme is strongly involved in local industrial development and cooperates with high-tech companies from Trbovlje (e.g. Dewesoft, Rudis) and foreign universities (Vienna and Linz). The municipality expects that the educational programmes will slow down the brain drain from Trbovlje (Strategija …, 2014).

The municipal development strategy aims to increase the competitiveness and innovation of the local economy. The municipality is committed to supporting entrepreneurship with infrastructure and creating an environment for economic development. It also supports and encourages available scholarships, co-financing of educational programmes and vocational training, and entrepreneurial ideas. In this way, the municipality tries to contribute to industrial development, especially higher value-added jobs (Strategija ..., 2014). Despite some promising and innovative initiatives, successful businesses and the fundamental support of national and local authorities in economic restructuring, Trbovlje has still not recovered from the economic decline of the last decades. Entrepreneurship, innovation and competitiveness must be continuously encouraged from the youngest onwards, so that the new generations break with the industrial path that was regulated and in some ways imposed in the past, and start the economic reorientation and growth.

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5 Switzerland: Case study towns

5.1 Introduction

This chapter examines the three Swiss case study towns of Biel/Bienne, Glarus, and Mendrisio in their respective contexts. Each case study town is divided into four subchapters to explore the case in its (1) Cantonal context and (2) its regional innovation systems (RIS), and to describe (3) its industrial development and economic shocks, and (4) its idiosyncratic industrial culture.

The first subchapter explores the case-study towns in their respective Cantons of Bern, Glarus, and Ticino to provide an overview of the Canton regarding its distinctive context, regional development trajectories, and institutional dimensions using the institutional frameworks developed by Hall and Soskice (2001) and Scott (2013). Table 4 provides an overview of the case study town in their respective Canton and administrative district.

			Canton		
	Bern	Biel/Bienne District	Canton of Glarus	Ticino	Mendrisio District
Population (2019)	1,039,474	102,156	40,590	351,491	50,342
Population growth (2010-2019)	6.1	8.8	5.1	5.3	3.3
0-19 years old	19	19.7	19.2	18	17.4
20-64 years old	59.9	60.1	60.5	59.1	58.4
>64 years old	21.1	20.2	20.4	23	24.2
Foreigners in %	16.6	27.2	24.2	27.6	24.6
GDP per capita in CHF (2018)	79,115	n/a	69,860	87,612	n/a
Employment per sector in 2018 (in % of total employed)					
Primary (in %)	32,529 (5.1%)	635 (1.2%)	1,042 (4.7%)	3,351 (1.4%)	525 (1.1%)
Secondary (in %)	13,1387 (20.5%)	15,438 (27.2%)	7,946 (36.1%)	51,616 (21.9%)	14,602 (31.9%)
Tertiary (in %)	478,232 (74.5%)	40,635 (71.6%)	13,015 (59.2%)	180,736 (76.7%)	30,689 (67%)
Total	642,148	56,708	22,003	235,703	45,816

Table 4. Regional administrative jurisdictions, statistical overview. Source: BFS.

The second subchapter illustrates the main actors of the case-study towns' regional innovation systems (RIS). This subchapter distinguishes between two RIS—the macro-level RIS supported under the New Regional Policy (NRP) and at the more local administrative district level. In Switzerland, the New Regional Policy (NRP) is supporting six RISs to guide intervention regarding innovation and competitiveness at different macro-regional levels, including SME support and services, networking, infrastructures, and funding. Each RIS is associated with an organisation that oversees the implementation of the strategy jointly with Cantonal authorities.

The third subchapter explores the industrial development trajectory and economic shocks in the case study towns. The main economic shocks and subsequent path trajectories are described using the conceptual framework by Martin (2012) and Martin and Sunley (2015).

The fourth subchapter uses the concept of industrial culture to describe the tangible and intangible elements forming industrial culture in each case-study town. The concept of industrial culture provides an analytical lens to understand spatial and historical industrial trajectories and patterns. It compiles at set of tangible and intangible assets (that forms a way of life and class consciousness (Byrne, 2002; Harfst et al., 2018). Görmar et al. (2018) state that "[…] utilising Industrial Culture holds the potential to unlock new development options and strengthen the connection of the people to places" and can be operationalised by examining three spheres: industrial production (production patterns), tangible (relicts, buildings and landscapes) and intangible elements (expertise, attitudes, traditions and values).

5.2 Case Study Town – Biel/Bienne

Biel/Bienne, the capital of the Biel/Bienne administrative district, is a medium-sized town with 55,601 inhabitants in 2019, and an important industrial town in the Canton of Bern (BFS, 2021b). The town of Biel/Bienne is located in the foothills of the Jura mountains and on the shoreline of Lake Biel with access to rivers such as the Suze and the Aare. Located at the crossroads of the towns of Neuchâtel, Solothurn, and Bern, Biel/Bienne has three highways and a junction railway station. Biel/Bienne is one of two officially bilingual Swiss towns. 57 percent of the inhabitants are German-speaking and 43 percent French-speaking (Biel/Bienne, 2021a). Since the 1900s, Biel/Bienne has been the centre of left-wing political, urban, and social experimentation, thanks to left-wing mayors and workers' organisations (Gaffino & Lindegger, 2013).

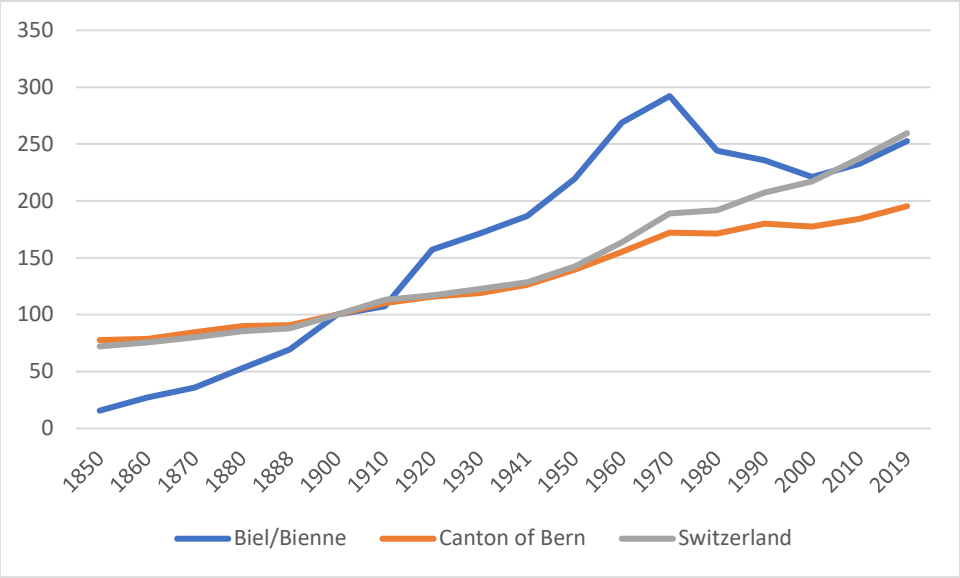

Figure 33. Population growth in Biel/Bienne, the Canton of Bern, and Switzerland, 1850-2019, base 100 in 1900. Source: the authors from BFS.

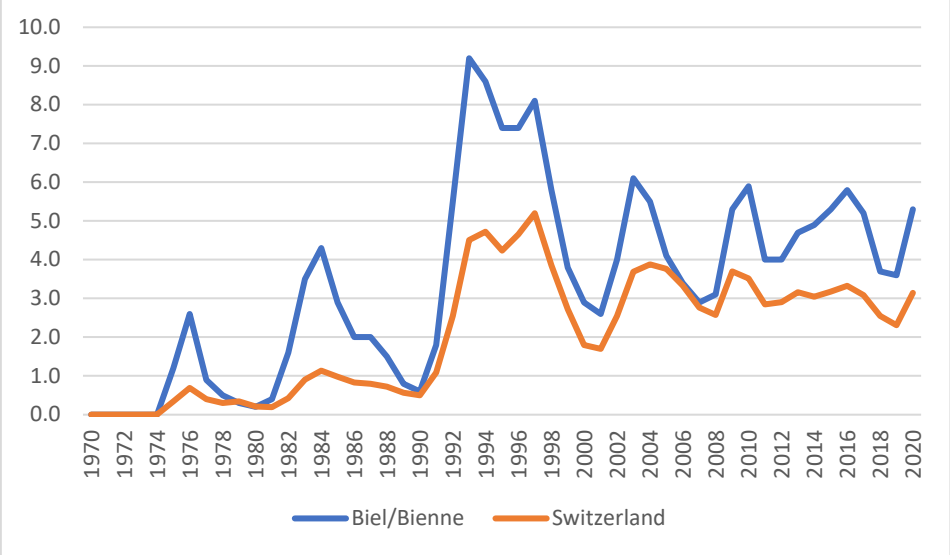

Figure 34. Unemployment rate in Biel/Bienne and Switzerland. Source: the authors from BFS.

Biel/Bienne			
	2008	2018	% Change 2008-2018
Population in 2010	51,203	55,159	7.2%
Foreign nationals in % in 2010	28.7	34.2	16.1%
Number of employed	33,796	41,468	18.5%
Primary sector (in %)	53 (0.2)	38 (0.1)	-39.5%
Secondary sector (in %)	9,421 (27.9)	9,739 (23.5)	3.3%

Tertiary sector (in %)	24,322 (72)	31,691 (76.4)	23.3%
Unemployment rate in % (annual average)	3.1	3.7	16.2%

Figure 35. Biel/Bienne's key indicators. Source: the authors from BFS.

5.2.1 Cantonal Institutional Context

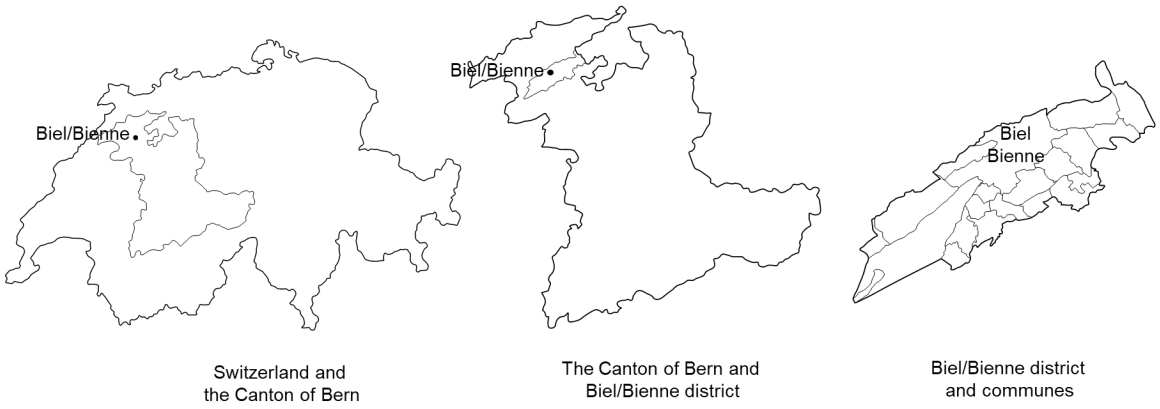

Figure 36. Bern: administrative regions. Source: the authors

The canton of Bern is a German- and French-language canton in the central-western part of Switzerland, bordered by the cantons of Jura, Solothurn, Aargau, Neuchâtel, Vaud, Fribourg, Lucerne, Nidwalden, Obwalden, Uri and Valais. Bern covers an area of 5,959 km^2 and counted 1,039,474 inhabitants in 2019 (BFS, 2021c). The covered area is highly heterogeneous and extends from the Alps in the south over the Central Plateau up to the Jura Mountains. It is divided into five administrative regions. The Bern-Mittelland is the administrative and economic centre with the Swiss capital, Bern and home to half of the total cantonal jobs. The Oberland is touristic and mountainous, the hilly Emmental-Oberaargau is a stronghold for agriculture and capital goods industry, and the Seeland and Jura bernois / Berner Jura regions have an important precision industry (Canton of Bern, 2021b). The canton's structural weaknesses and disparities were and are addressed through multiple federal and cantonal policies, the federal investment aid act (*Investitionshilfegesetz*) together with the cantonal location promotion (*Wirtschaftsförderung Kanton Bern*), and since 2008 with the New Regional Policy (NRP) (Junker et al., 2018). In 2019, the average GDP per capita in the canton of Bern was slightly below the Swiss average (CHF 79,115; CH: CHF 84,518) (BFS, 2021c).

The canton of Bern used to have a large agricultural and industrial sector. After World War II, mechanisation of the agricultural sector led to a large decline of rural areas, a transfer of industries in the alpine foothills, and above-average suburbanisation. The capital city of Bern, as well as some SMSTs and the touristic regions, largely benefited from the tertiarisation of the economy, contributing to economic disparities within the canton (Junker et al., 2018). The largest sectors in the canton of Bern in terms of employees are healthcare (8.4%), public administration (6.7%) and the educational sector (6.3%) (BFS, 2020a). Public administration,

the cantonal and federal administration, with a location quotient of 1.8, represents the two biggest cantonal employers, followed by healthcare with the *Insel-Gruppe,* the cantonal hospital (BFS, 2020a).

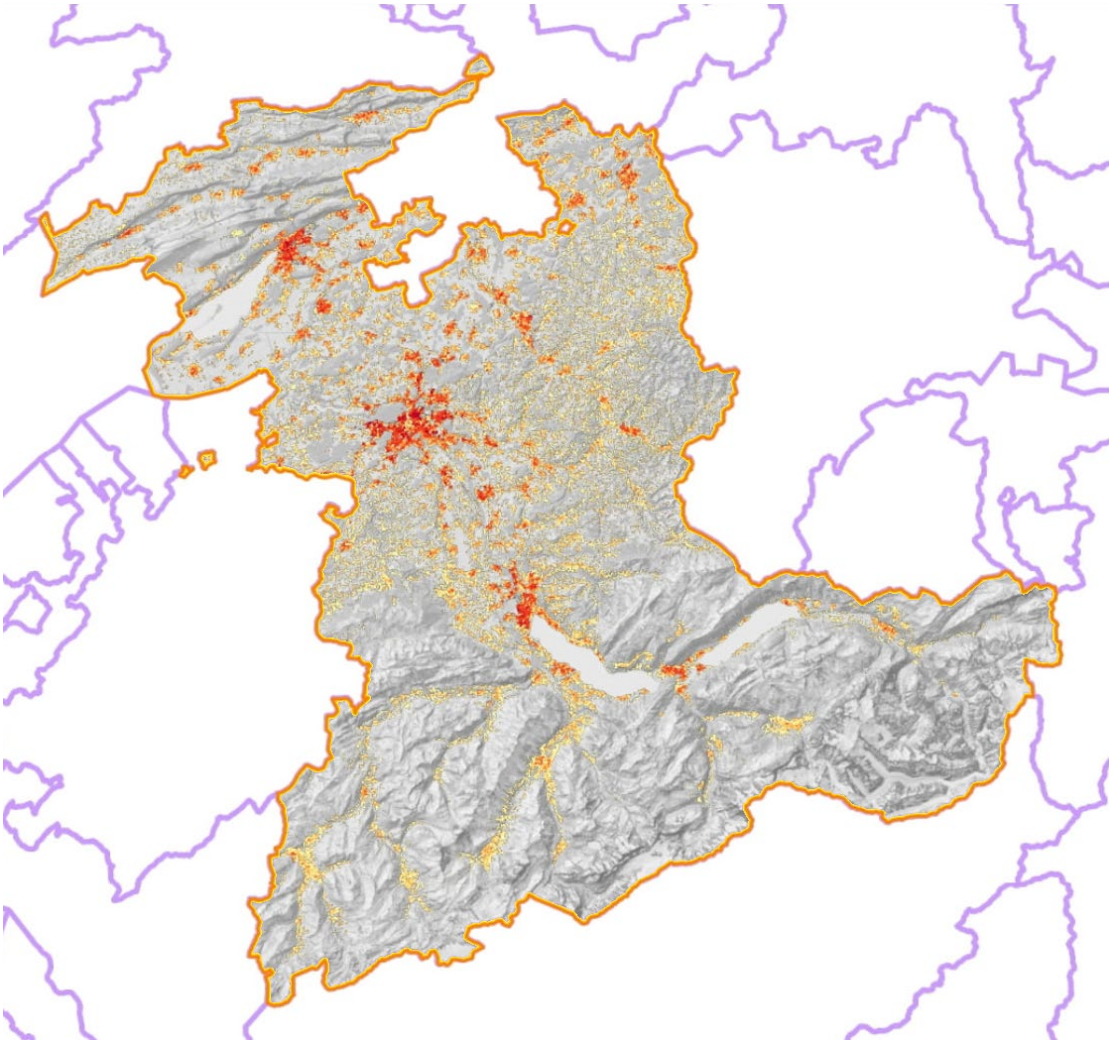

Figure 37. Bern: topography, population density. Source : swisstopo

The Canton of Bern is seen as a bridging region between the German and the French part of Switzerland (see Canton of Bern, 2013 – Art. 2.2 Cantonal Constitution). It has thus strong cultural-cognitive ties to both language regions bordering the so-called *Röstigraben* (language divide), influencing the canton's formal and informal institutions in a heterogeneous manner. There are confessional and functional cleavages among Bern Mittelland, Seeland and the Jura bernois which have led to partitionist movements since the 19th century. For instance, the Canton of Jura seceded from the Canton of Bern in 1978 following a popular vote. Additionally, the Jura bernois, one of the French-speaking districts, has a strong sense of local identity and in 2021, the town of Moutier in the Jura bernois voted to join the Canton of Jura (SRF, 2021). The case of the Jura (*Jurafrage*) with the separatist tendencies is one of the many divides across the Canton of Bern. There are strong political and cultural divides across urban-rural geographical divisions that not only emerged from diverse normative values, but also from

fiscal and economic regulative institutions within the canton, where rural regions face comparatively higher taxes (Messerli, 2014).

5.2.2 Biel/Bienne: Regional Innovation System

Biel/Bienne is an industrial town in the Canton of Bern, which has a heterogeneous, organisationally thin, and diversified regional innovation system (Kaufmann, 2016; see Figure 38). At the macro-level, the Canton of Bern belongs to the RIS Mittelland. Its districts of Jura bernois, Biel/Bienne, and Seeland also belong to the RIS Suisse Occidentale (Western Switzerland) (Regiosuisse, 2021). With the Swiss capital city of Bern, the canton is home to Federal organisations and former state-owned companies such as the Schweizerische Post (Swiss Post), Swisscom, the leading telecom firm in Switzerland, and the national train company Schweizerische Bundesbahnen (SBB, Swiss Federal Railways). The University of Bern and the Bern University of Applied Sciences are the two most important educational organisations. Capital Region Switzerland is a not-for-profit organisation that cooperates with four neighbouring cantons to promote regional cooperation. Sitem Insel is a public-private partnership medical cluster that was established in 2015 in Bern. The Laboratory for Mechanics of Materials and Nanostructures (EMPA) is a centre of excellence in Thun. The Bern Economic Development Agency (BEDA) is the official body involved in formulating and executing locational policies and coordinating the cantonal economic development plan. These processes are pursued together with be-advanced, a public-private organisation that provides supports for start-ups and SMEs under the New Regional Policy (NRP) (Regiosuisse, 2021; Canton of Bern, 2021c).

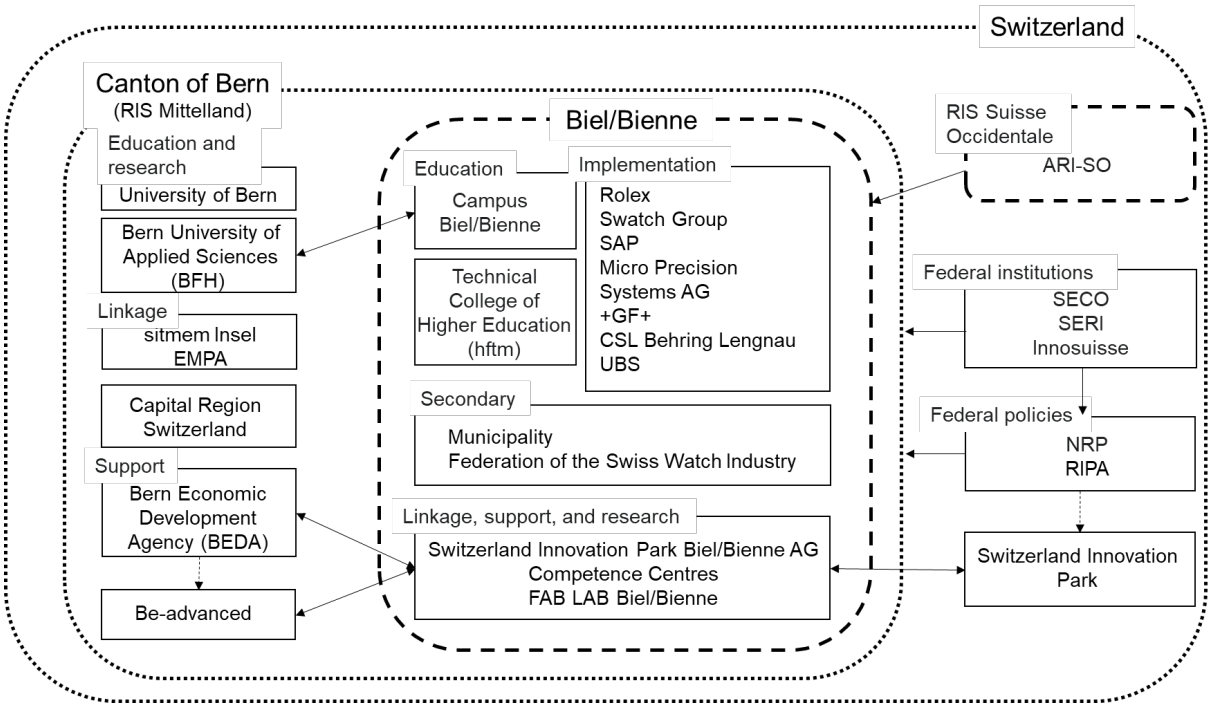

Figure 38. Biel/Bienne's regional innovation system. Source: the authors

Biel/Bienne's local RIS represents the Biel/Bienne administrative district, which groups 102,156 inhabitants in 2019 over 19 municipalities—Aegerten, Bellmund, Biel/Bienne, Brügg, Evilard, Ipsach, Lengnau, Ligerz, Meinisberg, Mörigen, Nidau, Orpund, Pieterlen, Port, Safnern, Scheuren, Schwadernau, Sutz-Lattrigen, and Twann-Tüscherz (Canton of Bern, 2021a). The Biel/Bienne administrative district has a large secondary sector employing 27% of the total employed population. 72% of the total employed population is employed in the tertiary sector (see Table 4). Biel/Bienne is part of the Swiss Jura Arc, a historically industrial territory that has managed to create new industrial activities and develop Industry 4.0 capacities (Crevoisier, 1993; Jeannerat & Theurillat, 2021; Maillat et al., 1995). Biel/Bienne is an important watchmaking centre with the headquarters of the Swatch Group and the Federation of the Swiss Watch Industry, and the production centre for Rolex. It has also developed an important precision mechanics industry and medical and biotech sector, composed of the companies Micro Precision System AG, GF Machining Solutions, and CSL Behring Lengnau. Campus Biel/Bienne is a project to regroup two BFH departments "Architecture, Woodwork and Construction" and "Technology and Informatics" on a campus in 2025. The Technical College of Higher Education (hftm) is a vocational school with close industrial partnerships.

In 2015, the Swiss Innovation Park Biel/Bienne (SIPBB), one of the five sites of Swiss Innovation Park (SIP), was launched as a continuation of the Innocampus AG project. The SIP is a national flagship programme for promoting research and innovation that was introduced in the Federal Act on the Promotion of Research and Innovation (RIPA) in 2012 (Fedlex, 2020). The Switzerland Innovation Foundation is the public-private governance body that supervises the development of SIPs. SIPs must have a long-term vision and be financially sustainable with strong private sector involvement while receiving Federal supports through beneficial loan guarantees and Federal lands for construction (Fedlex, 2015). Initially, four sites were planned, namely two major hubs at ETH Zurich and EPFL Lausanne, and two secondary hubs in the Canton of Aargau and in Basel (Fedlex, 2015). Public and private leaders managed to convince the State Secretariat for Education, Research and Innovation (SERI) to add SIPBB to the list of SIPs (Rickenbacher, 2014). SIPBB includes research and innovation infrastructures, office spaces, support services, a FabLab, technology demonstrators, a start-up incubator and accelerator, and four competence centres, namely the Swiss Smart Factory (SSF), the Swiss Advanced Manufacturing Centre (SAMC), the Swiss Medtech Centre (SMTC), and the Swiss Battery Technology Centre (SBTC).

5.2.3 Industrial development and economic shocks in Biel/Bienne

The first industrial firms in Biel/Bienne were in textiles, such as the Pasquart indienne manufacturer established in 1747. This firm was an important employer in the city and closed in 1842, leading the municipal council to look for new industries (Nast, 2000). With the growth of the watchmaking industry in the Jura region, in 1844, the city council voted to offer fiscal incentives through local tax exemptions for attracting watchmakers, which were extended until 1849 (Büro Cortesi Biel, 2005; Gaffino & Lindegger, 2013). This fiscal incentive triggered the

development of the watchmaking industry and the town's bilingual status due to the influx of watchmakers coming from French-speaking cantons. In 1856, the town counted 795 watchmakers representing 16% of the workforce, mostly coming from the French-speaking canton of Jura (Steiner, 2015).

The rapid development of the watchmaking industry in Biel/Bienne is based on its industrial modernisation using mass-production practices (Steiner, 2015). In 1878, Jean Aegler established its watchmaking manufacturer, *Manufacture des Montres Rolex SA*. In 1889, Omega was the largest watchmaker with 600 employees and a production of 100,000 watches per year(Büro Cortesi Biel, 2005). Mass-production in the watchmaking industry led to the development of a local machine tool industry and the creation of training structures (vocational school in 1860, a watchmaking school in 1873, and a Technicum in 1890) to respond to the local demand (Steiner, 2015). The rapid industrialisation led to the emergence of political consciousness among industrial workers. With Gottfried Reimann (1907-1909) and Guido Müller (1921-1947) the town's left-wing politics developed, leading Biel/Bienne to be nicknamed "Bienne la Rouge" (Steiner, 2015).

The first major shock in Biel/Bienne's industrial sector occurred when the watchmaking industry entered a crisis with the post-war depression in the 1920s that culminated with the Great Depression in 1929. In 1933, 5,000 persons were unemployed, representing 12.7% of the 38,000 inhabitants (Nast, 2000). The Great Depression led to industrial concentration in the watchmaking sector but also offered momentum for economic diversification. In 1930, watchmakers Omega and Tissot formed the *Société Suisse pour l'Industrie Horlogère* (SSIH) and in 1931 the *Allgemeine Schweizerische Uhrenindustrie AG* (General Swiss Watch Industry Group ASUAG) was created. Facing the industrial crisis, interventionist mayor Guido Müller (1921-1947) initiated large-scale local programs such as the construction of Biel/Bienne public beach and training and reskilling programs, and was able to convince General Motors (GM) to open its Swiss factory in Biel/Bienne in 1935 by offering municipal support amounting to CHF 2 million (Steiner, 2015).

In the mid-1930s, Biel/Bienne recovered from the Great Depression thanks to Federal interventions (i.e. devaluation of the Swiss Franc in 1936), protectionist measures and importation barriers (i.e. "statut horloger" in 1934), the Labour Peace Agreement between in the machine and metal in 1937, and most importantly, to industries converting to arms production before and during World War II (Nast, 2000; Steiner, 2015). After World War II, Biel/Bienne benefited from the post-war economic expansion and attracted foreign workers, mostly Italian, to respond to the rapid industrial demand (Steiner, 2015). In 1965, one-quarter of the workforce was foreigners (Gaffino & Lindegger, 2013). The population rapidly increased from 43,705 inhabitants in 1945 to a peak in 1964 with 64,848 inhabitants (Steiner, 2015). Despite economic diversification, namely in the metallurgy and the machine tool industry, 10 percent of the town population still worked in the watchmaking industry in the late 1940s (Gaffino & Lindegger, 2013).

The second major impact on Biel/Bienne's industrial sector was exogenous, with the global shock sparked by the 1973-1979 oil crisis that coincided with the so-called "quartz crisis" of restructuring within the watchmaking industry. As a symbol of this oil crisis, the car manufacturer General Motors closed in 1975 (Nast, 2000). The quartz crisis had a structural

and long-lasting impact on the town leading to population decline (48,853 inhabitants in 2000) (Nast, 2000; Steiner, 2015), industrial job decline (3,200 mostly watchmaking jobs lost between 1975 and 1985) (Steiner, 2015), unemployment (4.3% in 1984) and the decline of the Swiss global watchmaking market share (44 to 13 % between 1970 and 1985) (Nast, 2000).

Biel/Bienne recovered from the crisis in the mid-1980s thanks to the restructuring of the watchmaking industry and its repositioning in the luxury market, the economic diversification promoted through Federal aids into the machine industry and precision industry, and the increased importance of the service sector (Dubler, 2018; Glasmeier, 2000; Nast, 2000; Steiner, 2015). In 1983, two historic holdings, the *Société Suisse pour l'Industrie Horlogère* (SSIH) and the *Allgemeine Schweizerische Uhrenindustrie AG* (ASUAG) merged to form the *Société de Microélectronique et d'Horlogerie* (SMH), later renamed The Swatch Group in 1998 and headquartered in Biel/Bienne (Nast, 2000). However, the town again went through economic troubles with the 1990s recession, which particularly affected the real-estate and construction sectors and the machine tool and heavy metallurgy industries, contributing to a sharp increase in unemployment peaking at 9.8% in 1993 (compared to 5.1% in Switzerland as a whole) (Steiner, 2015).

The 1990s in Biel/Bienne were marked by an increased share of the service sector in the economy and the relative decline of the industrial sector. Mayor Hans Stöckli (1990-2010) launched a local strategy called "Biel/Bienne the city of Communication," spurred by the 1991 relocation of the Federal Office of Communications (OFCOM). The town managed to attract multiple call centres such as DiaX, Sunrise, and Orange thanks to its bilingual status, which took up residence in former industrial buildings (Nast, 2000; Steiner, 2015). A symbol of Biel/Bienne's economic revival was the National Exhibition Expo.02 held in 2002, which initiated large urban regeneration projects. The town population has increased from 48,853 in 2000 to 55,602 in 2019 (BFS, 2021b).

In its strategy Biel/Bienne 2030, the municipality is promoting four large urban regeneration projects: Railway station/Bienne, Esplanade, Gurzelen, and Champs-de-Boujean (Biel/Bienne, 2021). The area between the lake and the railway station will focus on higher education and innovation with the creation of the Campus Biel/Bienne of the Bern University of Applied Sciences and Switzerland Innovaton Park Biel/Bienne (SIPBB). The Esplanade project aims to regenerate the town centre. In 2019, the Swatch Group opened its new headquarters with a Swatch and Omega museum in the Gurzelen large-scale urban regeneration project, and Rolex has reinforced its presence with new production facilities in Champs-de-Boujean (Biel/Bienne, 2021).

5.2.4 Economic shocks in Biel/Bienne – general overview

Town	Estimated time frame	Type of shock	Cause of shock	Pre-shock growth path[1]	Reaction to shock[1]	Adjustment to shock[1]	Post-shock growth path[1]	Type of economic resilience to the shock[2]
Biel/Bienne	1920-1933	Exogenous / economic	Post-war depression Great Depression	Watchmaking and related industries	Concentration of the watchmaking industry, unemployment, social unrest	Protectionist measures, large-scale local programs, attraction of General Motors	Watchmaking, precision industries, automobile industry	Recovery, Renewal, Re-orientation
Biel/Bienne	1973-1984	Exogenous /economic	Oil Crisis and Quartz crisis	Watchmaking, precision industries, automobile industry	Concentration of the watchmaking industry, unemployment, foreigners' departure	Federal policies for diversification	Watchmaking, precision industries, machine, and heavy industries	Re-orientation
Biel/Bienne	1991-1997	Exogenous / economic slow burn	The 1990s recession	Watchmaking, precision industries, machine, and heavy industries	Unemployment, heavy and machine tools industry closure	Local policies for diversification in the communication sector	Watchmaking, precision industries, machine, communication, service sector	Recovery and Re-orientation

[1] Roughly based on Regional economic resilience model by Martin & Sunley, 2015 (doi:10.1093/jeg/lbu015)

[2] Based on Martin, 2012 (DOI: 10.1093/jeg/lbr019)

5.2.5 Industrial culture in Biel/Bienne

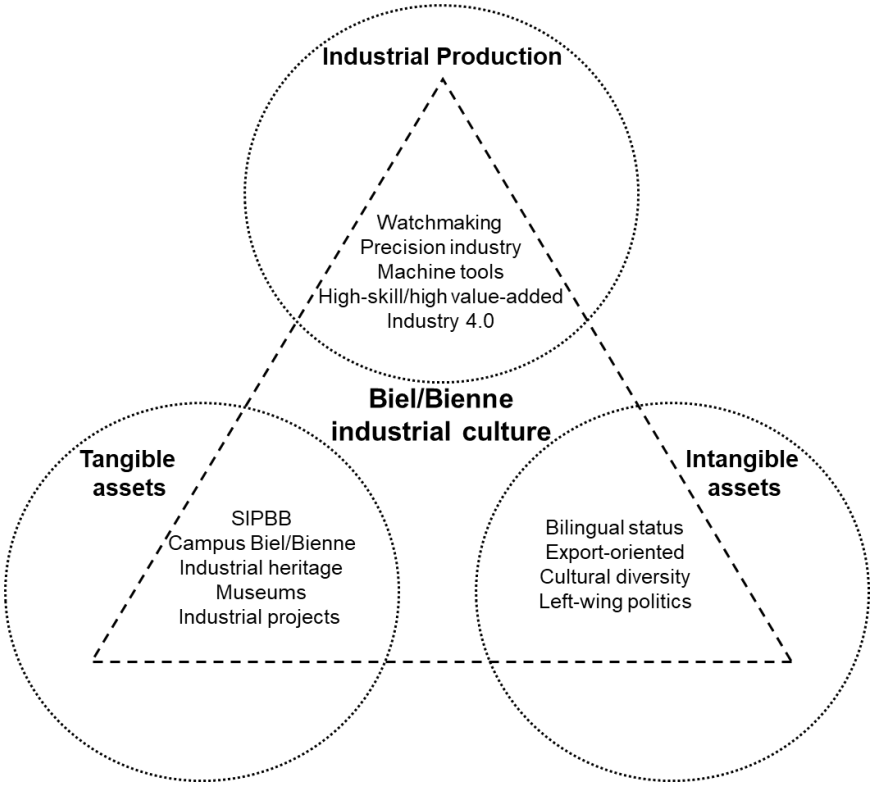

Figure 39. Distinctive elements of Biel/Bienne's industrial culture. Source: the authors.

The town of Biel/Bienne is currently supporting four important urban development projects—Gare/Lac, Esplanade, Gurzelen, and Champs-de-Boujean—all of them related to industrial development or transformation (Biel/Bienne, 2021b). The Gare/Lac aims to regenerate the district between the railway station and the lake and will be home of the Switzerland Innovation Park Biel/Bienne (SIPBB) and the Biel/Bienne Campus that will host the BFH and research on industrial applications. The Esplanade is a mixed-use planning project on an industrial brownfield. The Gurzelen urban development is driven with the Swatch Group development. Champs-de-Boujean is an industrial development area anchored by with the openings of the Rolex production building in 2012 and the Georg Fischer (GF) and its branch Mikron Agie Charmilles in 2019.

The town of Biel/Bienne has a rich industrial heritage with several industrial buildings that have been retrofitted for other socioeconomic activities. The most distinctive retrofitted industrial building is the Bahnof centre. Formerly the administration building and montage hall for General Motors, it is now a shopping centre next to the train station. Dispo is a former industrial building that has been converted into a cultural space with co-working spaces and a restaurant and bar. The Kulturfabrik or Kufa, which is located in the former Huguenin watch dial manufacturing space, provides space for cultural projects and workshops for artists. In the

town centre, the Volkshaus or Maison du Peuple is an iconic art deco building was built in 1932 as a centre for workers' association during socialist Mayor Guido Müller's administration. It is now a centre for events, and exhibitions. Opened in 2020, the X-Project is a youth cultural centre offering sports, cultural, music events and experimentation located in the former Biel/Bienne energy service industrial building.

Three museums are industrial heritage institutions. The Nouveau Musée Bienne has a permanent collection and a permanent exhibition that retrace Biel/Bienne's industrial culture, namely regarding its manufacturing and watchmaking industrial past. The museum frequently features temporary exhibitions on the town's industrial past and future, such as the temporary exhibition looks at Biel/Bienne 4.0 and Industry 4.0 in 2020-2021. One of the two buildings of the Nouveau Musée Bienne is located in the former premises of indienne manufacturer Verdan-Neuhays that were established in 1747 and closed in 1842. The Centre Müller is a museum established in a foundry with a large collection of rare machine tools. The Cité du Temps is operated by the Swatch Group and regroups the Omega Museum and Planet Swatch that focus on watchmaking and the history of the watch brands. Biel/Bienne communicates its watchmaking industrial history with billboards in multiple spots in the town and is part of the Watch Valley, a Swiss initiative to promote tourism in the Jura region.

The town of Biel/Bienne has specialised higher education institutions that offer courses to the development of the industrial sector. Campus Biel/Bienne is a project to relocate two Bern University of Applied Sciences (BFH) departments "Architecture, Woodwork and Construction" and "Technology and Informatics" on a campus in 2025. The Technical College of Higher Education (hftm) is a vocational school with close industrial partnerships that will be in the Swiss Innovation Park Biel/Bienne (SIPBB). The BBZ CFP Biel/Bienne is a vocational school that offers applied manufacturing and industrial programs and apprenticeship. Biel/Bienne's main industries are related to the watchmaking, precision, and machine-tool industries. They are high-value added and high-skill industries, and the city has several world-renowned firms such as Swatch and Rolex in the watchmaking industry. The Swiss Innovation Park Biel/Bienne (SIPBB) is one of the most distinctive industrial development initiatives to promote the diffusion of Industry 4.0 technologies and processes to SMEs. Opened in 2020, the SIPBB includes research and innovation infrastructures, office spaces, support services, a FabLab, technology demonstrators, a start-up incubator and accelerator, and four competence centres: the Swiss Smart Factory (SSF), the Swiss Advanced Manufacturing Centre (SAMC), the Swiss Medtech Centre (SMTC), and the Swiss Battery Technology Centre (SBTC).

The town of Biel/Bienne is actively pursuing industrial development in its strategy 2030. In its orientation 3, the Biel/Bienne strategy 2030 highlights that the town offers attractive conditions for innovative companies and projects "building on its industrial history of almost 200 years" (Biel/Bienne, 2021b, p. 9). In addition, the strategic document Biel/Bienne 2030 emphasizes distinctive elements of the town identity such as its cultural and bilingual diversity, the openness of its population, and its internationally oriented economy. Biel/Bienne is the largest bilingual Swiss town and is highly multicultural. In 2019, 34 percent of its population was foreigners compared to 25.3 for Switzerland (BFS, 2021b). Biel/Bienne's main industries, namely the watchmaking, precision, and machine-tool industry, are strongly export-oriented. Town politics are noted for their strong left-wing parties, left-wing Mayors, and urban and social policies. Indeed, the rapid industrialisation and political consciousness among workers led to

the elections of emblematic left-wing Mayors that earned the town the nickname “Bienne la rouge” (Steiner, 2015).

5.3 Case-Study Town - Glarus

Glarus is the main town of the Canton of Glarus, going back to a *Landsgemeinde* decision in 1419 (Feller-Vest et al., 2011). Glarus, as town and canton, has a long industrial heritage and culture (von Arx et al., 2005). A booklet entitled *Glarnerisches Wirtschaftswunder* (Glarus’ economic miracles) was published in 1952 for the 600-year anniversary of the Swiss Federation. It highlighted the surprisingly early and successful industrialisation of the alpine valley, first with textile industries and later with heavy industries. With 36.1 percent of persons employed in the secondary sector, Glarus is one of the most industrialised cantons in Switzerland (BFS, 2021c). Due to the communal merger, the population more than doubled between 2010 (5,877) and 2019 (12,511). Harmonised with today’s political boundaries, the population grew by 1.3% (2000-2010) and 2.8% (2010-2019) respectively in the last two decades, which is well below the national average (9.2%, 9.4%) (BFS, 2021b).

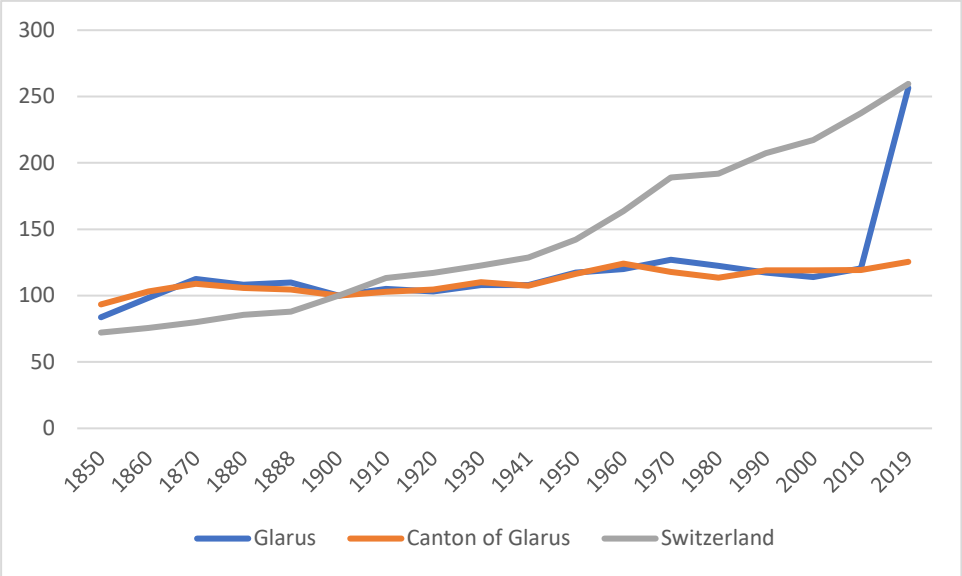

Figure 40. Population growth in Glarus, the Canton of Glarus, and Switzerland, 1850-2019, base 100 in 1900. Source: the authors from BFS.

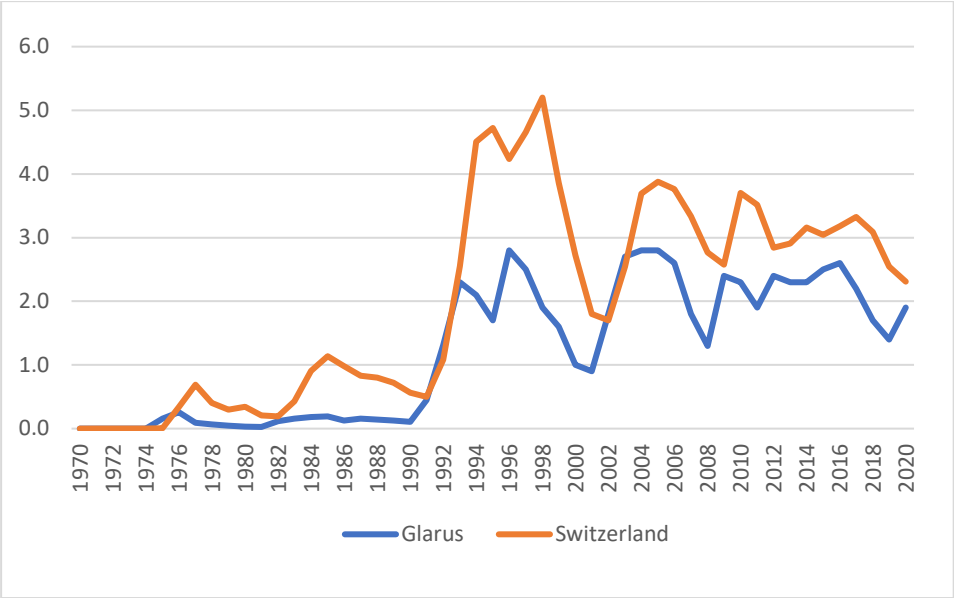

Figure 41. Unemployment rate in Glarus and Switzerland. Source: the authors from BFS. Unemployment rate from 1970 to 1992 in the Canton of Glarus and 1992 onwards in Glarus.

Glarus			
	2008	2018	% Change 2008-2018
Population in 2010	12,179	12,426	2.0%
Foreign nationals in % in 2010	23.1	27.2	17.7%
Number of employed	7,146	8,434	18.0%
Primary sector (in %)	173 (2.4)	152 (1.8)	-12.1%
Secondary sector (in %)	2,381 (33.3)	2,449 (29)	2.9%
Tertiary sector (in %)	4,592 (64.3)	5,833 (69.2)	27.0%
Unemployment rate in % (annual average)	1.3	1.7	30.8%

Figure 42. Glaurs' key indicators. Source: the authors from BFS.

5.3.1 Cantonal Institutional Context

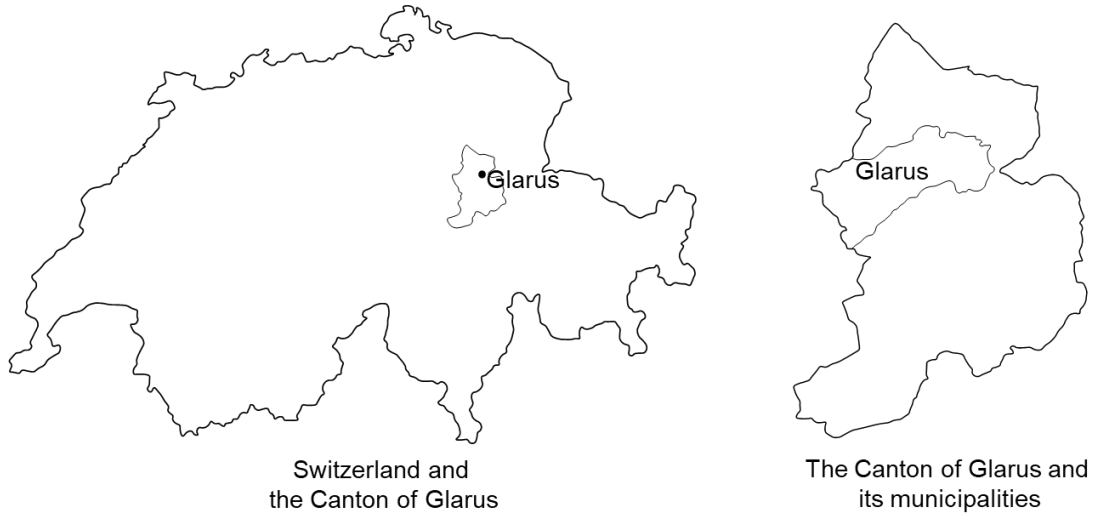

Figure 43. Glarus: administrative regions. Source: the authors

Glarus is a German-language canton in the southeast of Switzerland, sharing borders with the cantons of Grisons, Uri, Schwyz, and St Gallen. Glarus covers an area of 685 km^2 and its population counted 40,950 inhabitants in 2019 (BFS, 2021c). Since the municipal reform in 2011, Glarus is composed of three municipalities: Glarus (central capital city, 12,511 inhabitants, four former municipalities), Glarus Nord (most populous municipality, 18,626 inhabitants), and Glarus Süd (largest but rural municipality, 9,453 inhabitants, 13 former municipalities, eight former municipalities) (Canton of Glarus, 2021a; BFS, 2021b, SRF, 2013). The canton of Glarus includes one of the steepest mountain valleys in Switzerland and is landlocked by mountains in the southern valleys of Linth and Sernf and open towards the northern part (Linth plain) (Canton of Glarus, 2021b, see Figure 44). Glarus has less settlement area (2.9%) compared to the Swiss average (7.5%), and an above-average share of unproductive area (36.2%, CH: 25.3%, 2004/09). The workforce in Glarus has a lower rate of tertiary degree attainment with only 24.2% compared to the national average of 35.6 % in Switzerland (BFS, 2021c). With a GDP per capita of CHF 69,860 in 2018, Glarus ranks below the Swiss average (BFS, 2021c).

Glarus has a long industrial history. In the 18th century, handcraft spinning was the dominant industry, which branched into mechanized fabric textile in the late 19th century and to metal and machinery in the early 20th century. This economic dependence on industrial sectors made the Canton of Glarus prone to economic shocks (Lauper et al., 2017). Besides the industrial sector, which accounts for 36.1% of employees (CH: 20.8%, 2018), Glarus has an above-

average but declining agricultural sector (4.7%, CH: 3.1%) and an underrepresented service sector (59.2%, CH: 76.1%) (BFS, 2021c). The industrial sector is dominated by four large companies (>300 employees): Netstal Maschinen (metal), Kunststoff Schwanden (plastic), Eternit (construction), and Läderach (nutrition). The service sector includes a declining tourism sector, especially important in mountain areas of Glarus Süd (Hanser Consulting AG, 2018).

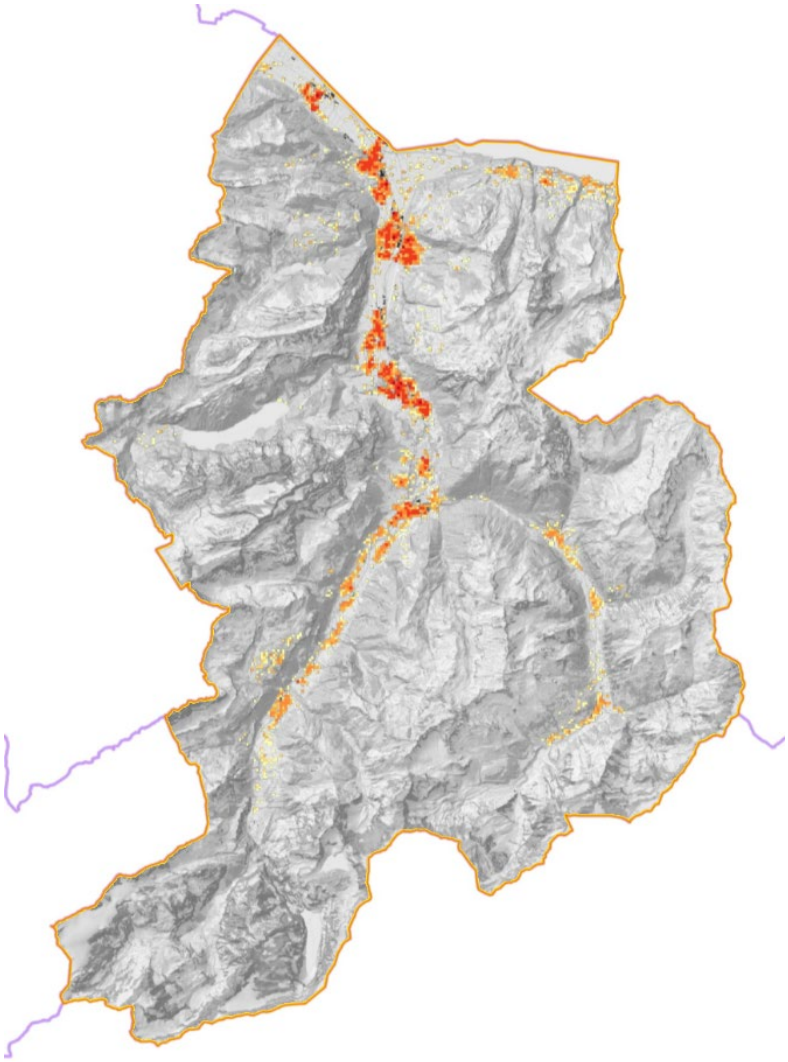

Figure 44. Glarus: topography, population density. Source: swisstopo.

Employment in the public administration, education, healthcare and social sectors is growing, pointing to an important residential economy especially in the central and northern part of the canton. The latter is favored by strong linkages and geographical proximity to the thriving metropolitan area of Zurich (Hanser Consulting AG, 2018).

An important foundation of governance in Glarus is the concept of direct democracy. The *Landsgemeinde* (cantonal assembly), which is the highest legislative force within the Canton of Glarus, is perceived as an ideal type of direct democracy (Stadler, 2021). The *Landsgemeinde* requires the voting population to be present in person on a yearly event to

vote on the most important cantonal decisions, which takes place only in the cantons of Appenzell Innerrhoden and Glarus. The voting participation quotient at the *Landsgemeinde* is currently declining from partly over 25% in the 1960s and 1970s to less than 10% today (Schaub & Leuzinger, 2018). In the national elections, Glarus voters do not vote for populist parties either from the far-right or far-left (The Populist, 2020; BFS, 2019b). Glarus accounts as a stronghold of the Centre party (2019: 63%) (BFS, 2019b) and has the lowest number of trade union members within Switzerland.

5.3.2 Glarus: Regional Innovation System

The Canton of Glarus belongs to the Regional Innovation System Ostschweiz (RIS Ost) of the federal New Regional Policy (NRP) and receives funding for SMEs development empowered by the intercantonal network INOS. RIS Ost has two large higher education institutions, the Universities of Applied Science Nordwestschweiz (FHNW) and University of St. Gallen (HSG) that aim to promote knowledge transfer (regiosuisse, 2021; Scherer & Zumbusch, 2019). In terms of functional and geographical proximity, however, the Canton of Glarus has stronger linkages to the metropolitan area of Zurich than to the RIS Ost. The municipalities of Glarus Nord and Glarus are part of the Metropolitan Conference Zurich, a network that fosters intercommunal and inter-cantonal cooperation in residential, mobility, social, and economic affairs (Metropolitan Conference Zurich, 2021a). The Canton of Glarus is an associate member of the Metropolitan Conference Zurich (Metropolitan Conference Zurich, 2021b).

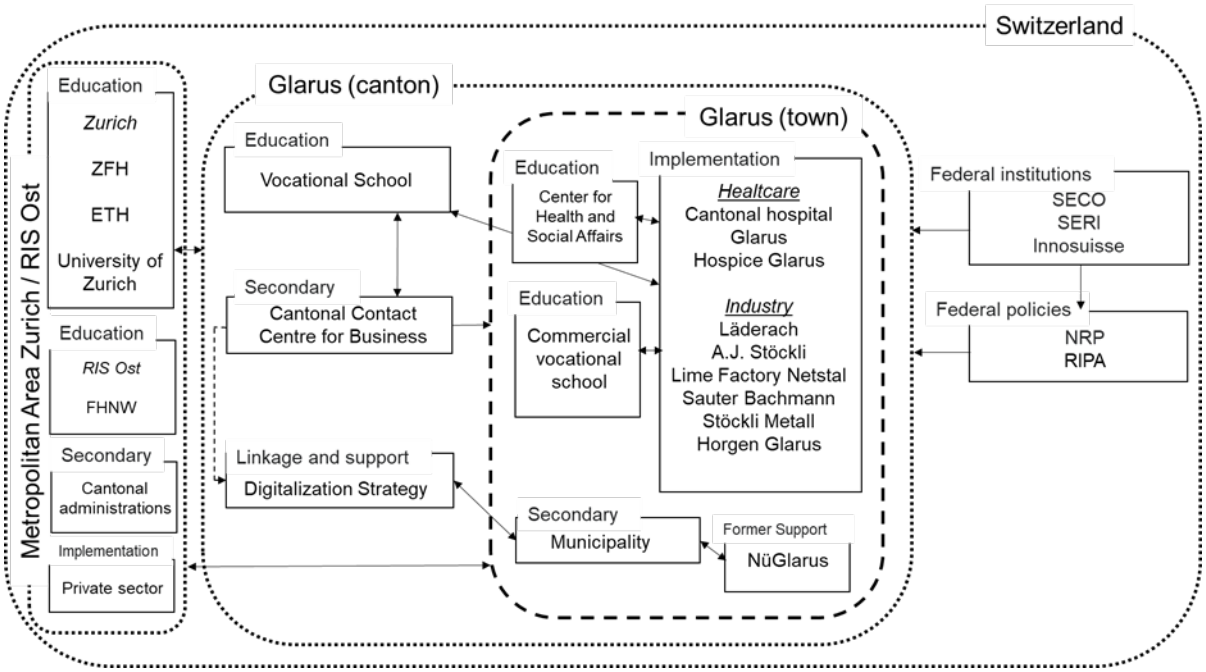

Figure 45. Glarus regional innovation system. Source: the authors

The Canton of Glarus' economic development follows a multi-actor and multi-scalar conception (Hassink et al., 2019) with the influence of federal institutions, local and cantonal authorities, local initiatives, vocational schools, and neighbouring regions, all of which are tightly

interconnected (see Figure 45). The Canton of Glarus is congruent to the district of Glarus (Canton of Glarus, 2021; BFS, 2021b). Several vocational schools serve the local industries with specialized skills, namely the vocational school in Glarus Nord, one private vocational school, and one school for health and social affairs in Glarus (Canton of Glarus, 2021c). The local industrial structure is composed of large companies in different industries, namely Läderach (nutrition), A.J. Stöckli (plastics), Lime Factory Netstal (lime), Sauter Bachmann (precision), Stöckli Metall (metal), and Horgen Glarus (furniture).

The Canton of Glarus has pursued several strategic development plans. Glarus is implementing a digitalisation strategy with a fibre broadband initiative to promote economic development (Staatskanzlei Kanton Glarus, 2019). The agenda-setting for digital issues was promoted through the local initiative *NüGlarus*, which ended in July 2020. Moreover, the municipality of Glarus has pursued local economic development plans to promote housing, services, tourism, and leisure (Bauer & Tscharland, 2017). Since 2019, the communal agency project *Üsers Glaris* aims to implement the strategy of the municipality Glarus, namely urban gardening (*Gartä Glaris*), PR (*Kampaniä*), delivery (*Glaris liferet*), and networking (*Ladäspionasch*) (Üsers Glaris, 2021). In 2020, the *Zukunftsbureau*, a national civil society and community engagement initiative to foster economic and political innovation as well as digitalization, opened a branch in Glarus (Zukunftsbureau, 2021).

5.3.3 Industrial development and economic shocks in Glarus

It was around 1715 that Glarus deacon Andreas Heidegger helped the then-agriculturally stagnant and divided municipality of Glarus to achieve an industrial-economic breakthrough, bringing spinners from Zurich to Glarus to teach the local population hand spinning and weaving (Feller-Vest et al., 2011; von Arx et al., 2005). This led to an overall boost in Glarus' economy and population growth until 1870, coinciding with a transformation from home to factory spinning and export-oriented textile printing. Overall, the population of the town grew from 1,700 in 1750 to 2,400 in 1800, and then to 5,500 in 1870 (Feller-Vest et al., 2011).

Mechanisation and several sales crises in the late 19th century led to an economic shock and depression, especially in the main town of Glarus (Feller-Vest et al., 2011). Although Glarus's response to the town fire that occurred during this period (1861) triggered a building and investment boom, the number of workers in textile printing decreased by more than half (1,700 to 800) between 1865 and 1888 and even large factories closed their doors until 1909 (Feller-Vest et al., 2011). The population decreased from 5,500 in 1870 to 4,877 in 1900 (Historische Statistik der Schweiz HSSO, 2012; Feller-Vest et al., 2011). Before WWI, the economic structure in Glarus thus transformed from textile printing towards other types of industrial production (cigarettes, furniture) and services. The period from the Great Depression to the late 1930s led to a large increase in unemployment in Glarus.

The post-WWII economic boom led to renewed industrial development in Glarus, especially for the textile, metal and machinery and the construction sectors (von Arx et al., 2005; Feller-Vest et al., 2011). This boom was abruptly interrupted by the 1973 and 1979 oil crises. In the Canton of Glarus, between 1960 and 1990, employment in the secondary sector dropped from 13,700 to 9,500. In Glarus town, economic stagnation and structural change could be seen in

population decline (from 6,200 to 5,500 between 1970 and 2000) and a decrease in the share of workers in the secondary sector (decreased from 48% to 33%, with an absolute decrease of 470 workers) while the share of tertiary workers increased from 48% to 56%, with an absolute increase of 237 workers (Feller-Vest et al., 2011; Lauper et al., 2017).

With the increasing mobility in the late 20th century, the number of commuters from neighbouring towns increased in Glarus. This contributed to the establishment of Glarus as a growing service-oriented centre in retail trade, banking and insurance (Feller-Vest et al., 2011; Lauper et al., 2017). The town tertiarization trend was hit again by a shock in the national economic recession in the 1990s. But the secondary sector was even more affected, with secondary sector employment dropping to 13% of all workers while services grew to 86%. The tertiary sector consists of an important retail sector, followed by healthcare, administration, and education, as the town hosts the cantonal hospital, the cantonal administration, and a high share of regional and cantonal schools (Feller-Vest et al., 2011).

In recent years, despite an increase in commuters to Glarus, the retail and service sectors are in decline, leading to the creation of service brownfields (Bauer & Tscharland, 2017; Feller-Vest et al., 2011). Inward commuters increased by 2.6% from 7,303 to 7,491, whereas outward commuters increased by 1.2% from 6,489 to 6,567 between 2014 and 2018 (BFS, 2020b). The influence of the communal administration increases, as the communal fusion of 2011 opened new synergy options (Feller-Vest et al, 2011). Inner city development as well as housing are big issues which might be accentuated with the ongoing COVID-19 pandemic. There is an increasing number of local initiatives, namely NüGlarus, Üsers Glaris, and the Zukunftsbureau, fostering innovation, digitalisation, and community participation, as well as the growing supra-regional influence by the canton (location promotion, see Hanser-Consulting, 2018), the Federation (New Regional Policy, RIS Ost) and the metropolitan area of Zurich (see Regional Context).

5.3.4 Economic shocks in Biel/Bienne – general overview

Economic shocks in Glarus – general overview	**Estimated time frame**	**Type of shock**	**Cause of shock**	**Pre-shock growth path[1]**	**Reaction to shock[1]**	**Adjustment to shock[1]**	**Post-shock growth path[1]**	**Type of economic resilience to the shock[2]**
Glarus	1870-1900	Exogenous (structural) & endogenous (event)	Mechanisation, sales crisis, town fire	Textile printing (high)	Population decline, diversification of industries and overall economy, building investments	Interventionist policies of the town, diversification	Textile printing (lower) cigarettes, furniture, services, construction	Recovery & path creation
Glarus	1929-1939	Exogenous / economic / war	Great Depression / World War II	Textile printing (moderate) and different industries	Unemployment, poverty, nutrition limits (rationing)	Post-War boom	Textile industry (persisting), machinery, metal industry, construction, services (persisting)	Decline in level & path creation
Glarus	1970-1998	Exogenous /economic slow burn	Structural Change (Tertiarization / Globalization); Recession	Textile industry, machinery, metal, construction, services	Industrial decline, higher mobility of people, tertiarization, slightly higher unemployment	Federal policies for tertiarization and diversification	Different persisting industries (lower), retail, healthcare, administration, education	Recovery & path creation

[1] Roughly based on Regional economic resilience model by Martin & Sunley, 2015 (doi:10.1093/jeg/lbu015)

[2] Based on Martin, 2012 (DOI: 10.1093/jeg/lbr019)

5.3.5 Industrial culture in Glarus

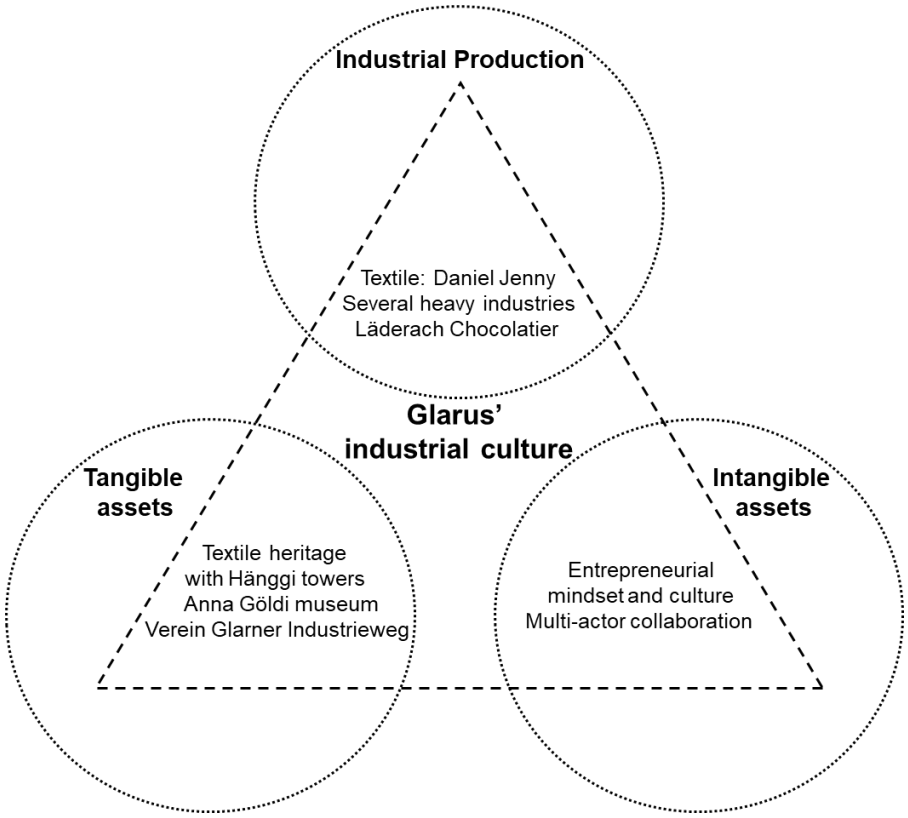

Figure 46. Distinctive elements of Glarus's industrial culture. Source: the authors.

Glarus's industrial landscape has either been lost, restructured or protected, and is partially endangered (Von Arx et al., 2005; Meier, 2019). There was no clear strategy to protect industrial heritage until 2013, when the Canton of Glarus conducted an inventory of its remaining industrial buildings and infrastructures (Canton of Glarus, 2013). Despite Glarus's important textile heritage, most of the textile-printing factories with their distinctive Hänggi towers have either been retrofitted for other industrial activities or demolished. The most distinctive industrial townscape element is the Hänggi tower in Ennenda, first retrofitted for housing purposes and later for exhibitions with the opening of the Anna Göldi museum in 2020. Two other museums feature the town's industrial past: the Löntsch power plant museum in Netstal, and the Freulerpalast in Näfels (municipality Glarus Nord), which showcases a permanent exhibition on textile industries and iconic fabric such as the Glarus's scarf, Glarner Tüechli. Distinctive buildings for the industrial present are the Daniel Jenny textile production and the Läderach Chocolatier Suisse buildings in Ennenda. The not-for-profit association, Verein Glarner Industrieweg, offers guided tours and visits of Glarus's distinctive industrial heritage and organises events on Glarus's industrial heritage.

The most distinctive intangible asset in Glarus is its inhabitants' entrepreneurial mindset and culture. Indeed, the former federal president, Didier Burkhalter, stated in 2014 in a speech in Ennenda, that "[t]he canton of Glarus has understood how to bring together ideas, people and

materials from all over the world, create added value through innovation and then export the result back to the whole world. Openness, innovation and a love of quality work are still the recipe for success in Glarus today and the basis for Switzerland as a model of success" (as quoted from Kaufmann, 2014, p. 7). Despite Glarus's shift towards the service sector, industrial development is one of seven strategic objectives in the municipal development policy of Glarus 2030. Moreover, Glarus is pursuing economic development and is addressing societal challenges in a multi-level governance setting and is collaborating with a wide range of stakeholders (Gemeinde Glarus, 2015).

5.4 Case-Study Town - Mendrisio

Mendrisio, the capital of the Mendrisio district, had 14,870 inhabitants in 2019 (BFS, 2021b). Since 2004, Mendrisio has incorporated nine neighbouring communes. Mendrisio is located on a transportation axis with the A2 motorway Basel-Chiasso, the Gotthard railway that connects Switzerland with Italy. Less than ten kilometres from the Italian border, Mendriso has close linkages with Italy. In 2019, around 57 percent of the persons employed in Mendrisio were cross-border workers (BFS, 2021d).

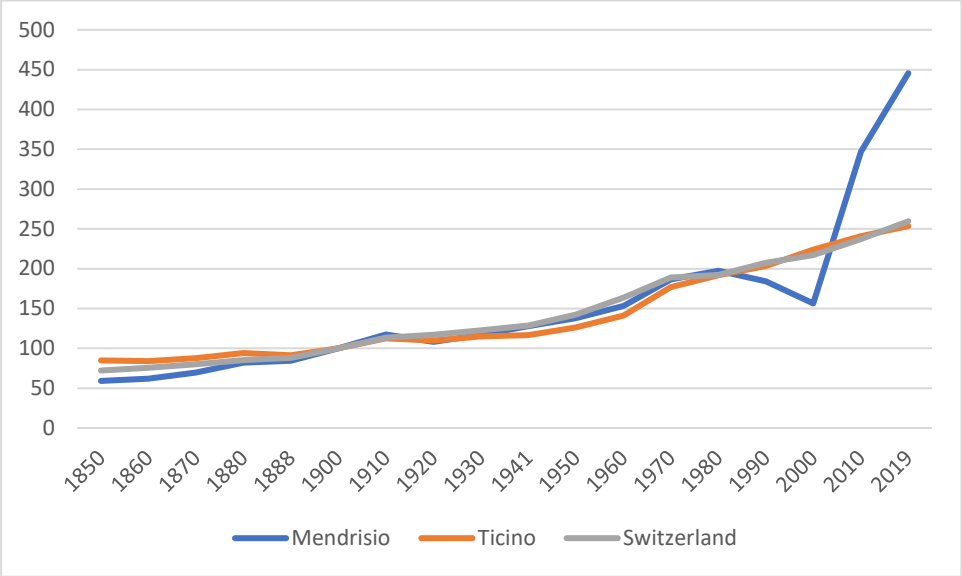

Figure 47. Population growth in Mendrisio, Ticino, and Switzerland, 1850-2019, base 100 in 1900. Source: the authors from BFS.

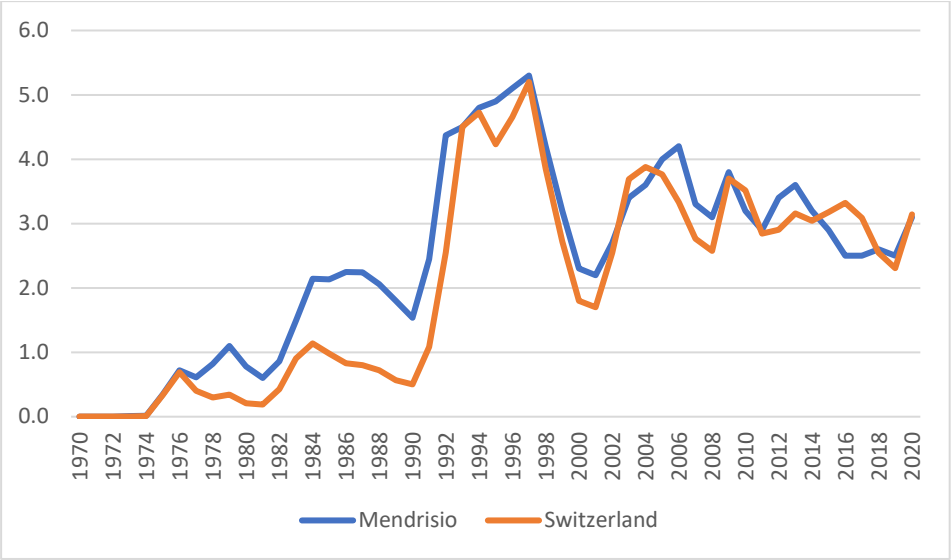

Figure 48. Unemployment rate in Mendrisio and Switzerland. Source: the authors from BFS. Unemployment rate from 1970 to 1992 in the Canton of Ticino and 1992 onwards in Mendrisio.

Mendrisio			
	2008	2018	% Change 2008-2018
Population in 2010	11,582	14,942	29.0%
Foreign nationals in % in 2010	21.1	22.2	5.2%
Number of employed	12527	16431	31.2%
Primary sector (in %)	116 (0.9)	201 (1.2)	73.3%
Secondary sector (in %)	5986 (47.8)	6672 (40.6)	11.5%
Tertiary sector (in %)	6425 (51.3)	9558 (58.2)	48.8%
Cross-border workers (annual average)	7,361	9,468	28.6%
Cross-border workers in % (annual average)	58.76	57.62	-1.9%
Unemployment rate in % (annual average)	3.1	2.6	-16.1%

Figure 49. Mendrisio's key indicators. Source: the authors from BFS.

5.4.1 Cantonal Institutional Context

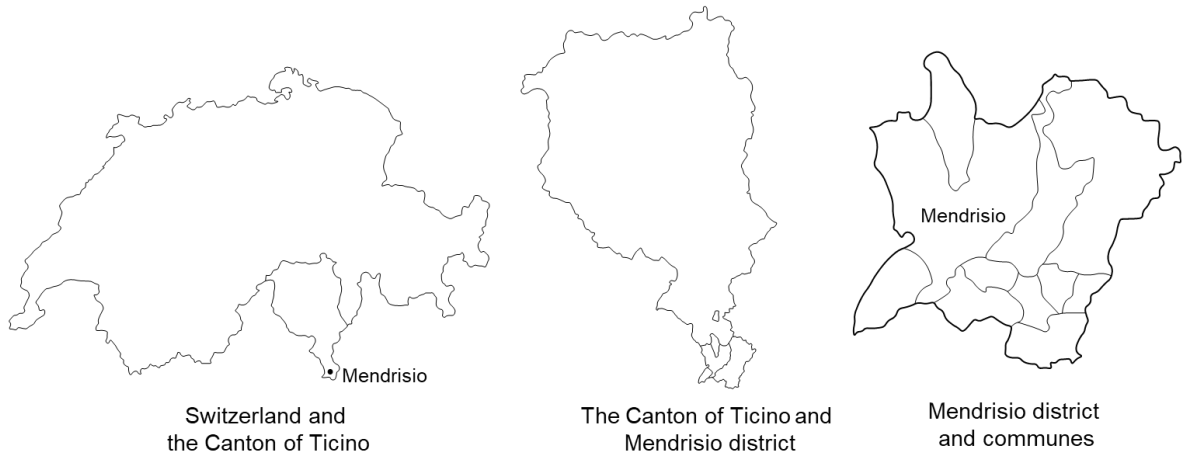

Figure 50. Ticino: administrative regions. Source: the authors

Ticino is Switzerland's southernmost canton, and the only Italian-speaking canton. It borders the cantons of Grisons, Uri, and Valais and the regions of Piedmont and Lombardy in Italy. Ticino covers an area of 2,812 km^2 and had a total population of 351,491 inhabitants in 2019 (BFS, 2021c). Its capital city is Bellinzona and its largest city is Lugano, with 63,185 inhabitants (BFS, 2021b). With CHF 84,518 in 2018, Ticino's GDP per capita is higher than the national average (BFS, 2021c). Most of the population lives close to the lakes of Lugano and Maggiore and the Italian border. 90% of the canton population lives on 14.5% of the canton total area (USTAT, 2020; seeFigure 51). Ticino has a total of 111 communes and is divided into 5 regions: Bellinzonese, Locarnese and Vallemaggia, Mendrisiotto, and Lugano, and Tre Valli, and 8 districts: Bellinzona, Blenio, Leventina, Locarno, Lugano, Mendrisio, Riviera, and Vallemaggia (Republic and Canton of Ticino, 2021).

In 2019, Ticino was ranked the second most innovative region in the Regional Innovation Scoreboard, after Zurich but in front of Helsinki-Uusimaa in Finland (European Union, 2019). The canton's economic structure is highly diversified, with an industrial sector ranging from light manufacturing to construction and textile, making it resilient to economic shocks. Ticino, however, does not have revealed comparative advantages (RCA) in high value-added sectors, but rather in lower value-added sectors such as the construction or service sector (Istituto di ricerche economiche, 2019). With 5,363 Swiss francs, Ticino has the lowest median monthly gross wage in 2018 for a macro-region in Switzerland, compared to the national median of 6,538 Swiss francs (BFS, 2018). In 2015, the canton selected four sectors to prioritise, namely life sciences, precision mechanics and electronics, Information and Communication Technologies (ICTs), and fashion to strengthen innovation and regional competitiveness in growing and high value-added sectors (Republic and Canton of Ticino, 2020). In 2021, Switzerland Innovation Park Ticino, which is associated with Switzerland Innovation Park Zurich and SIP, was officially launched (Fondazione Agire, 2021).

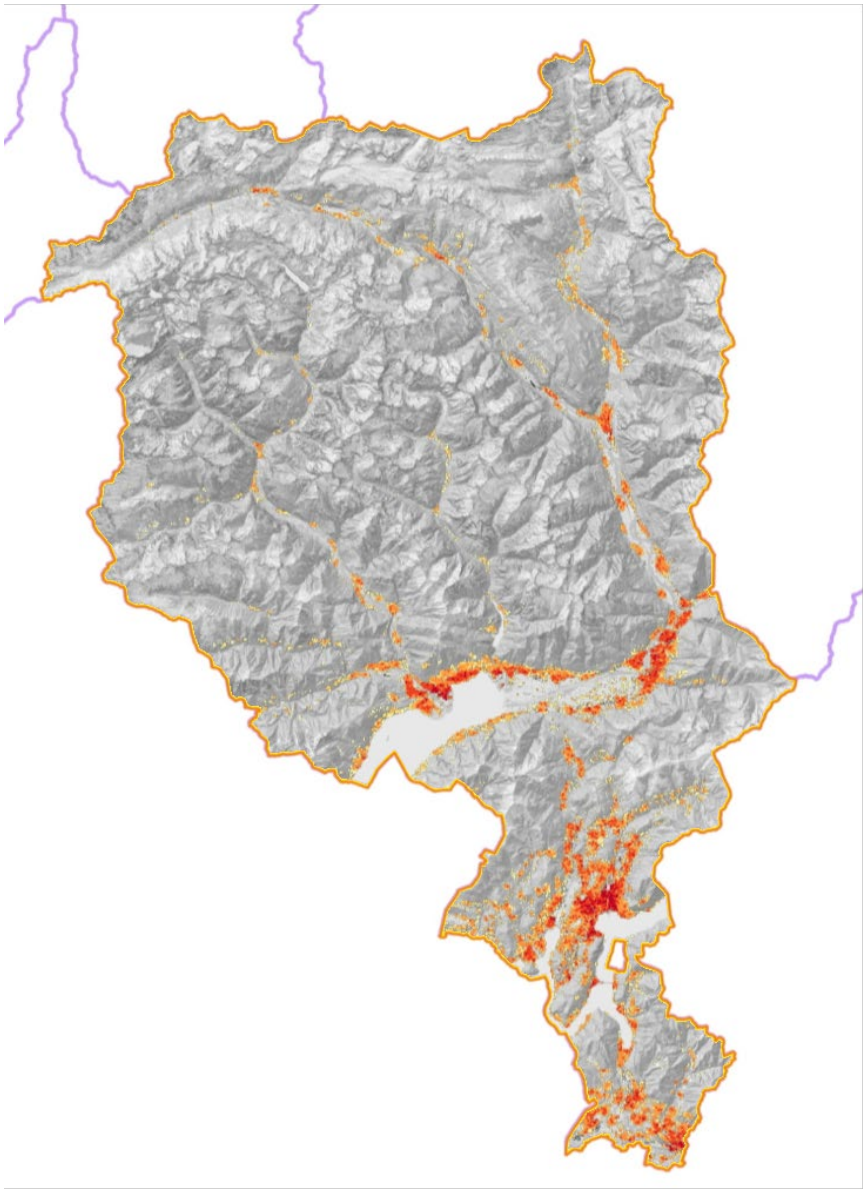

Figure 51. Ticino: topography, population density. Source: swisstopo.

Ticino has strong cultural-cognitive institutional ties with Northern Italy (Quinn, 2020). The Canton was geographically isolated from the rest of Switzerland until 1882 when the Gotthard Tunnel was opened. The tunnel placed Ticino on the industrial axis Zurich-Milan and initiated the region's industrial development (Coda & Garzia, 2006). 62,486 cross-border workers travel from Italy to Ticino, representing more than a quarter of Ticino's workforce and strongly influencing the region's informal institutions and impacting median wages (Repubblica e Cantone Ticino, 2019). Compared to the rest of Switzerland, labour market integration of cross-border workers in Ticino displays persistent wage gaps (Favre et al, 2021). Ticino has attracted Swiss companies thanks to the relatively cheap and abundant labour from Italy. Moreover, Italian fiscal instabilities have contributed to make Lugano the third financial hub after Zurich and Geneva (Coda & Garzia, 2006). Formal institutions, such as Regio Insubrica Association, a cross-border partnership created in 1995, aim to reinforce cross-border cooperation between

Ticino and Italian provinces (OECD, 2002). Fiscal incentives have been extensively used to attract foreign companies, namely Italian fashion brands in the fashion valley (Gauteri, 2018).

Despite close cultural and economic linkages with Italy, popular initiatives on immigration or greater integration with the European Union are largely rejected by Ticino's citizens. For instance, the 2014 and 2020 popular initiatives on immigration were respectively rejected at 68.9% and 52.7% in Mendrisio compared to 50.3% and 38.3% for the rest of Switzerland. The 1992 and 2001 popular initiatives on greater integration with the European Union respectively rejected at 16.8% and 38.2% in Mendrisio compared to 23.2% and 49.7% for the rest of Switzerland (BFS, 2021f). The Ticino League, a right-wing populist political party created in 1991, is an established political actor with 18 out of the 90 elected members of Grand Council of Ticino for the period 2016-2020 (BFS, 2021g). Ticino citizens also voted in favour of introducing a minimum monthly wage of CHF 4,000 in 2014 that will come into effect in 2021.

5.4.2 Mendrisio: Regional Innovation System

The Canton of Ticino has an institutionally thick and diversified innovation system (Coda & Garzia, 2006). It is characterised by its institutional proximity and business linkages with Italy, namely with Milan's metropolitan region (Coda & Garzia, 2006; see Figure 52). Indeed, Ticino depends on the Italian labour force, as there are 62,486 cross-border workers from Italy working in Ticino, representing more than a quarter of Ticino's workforce (Republic and Canton of Ticino, 2019). The office of economic development provides the regulatory framework and supports a wide range of executive agencies. AGIRE Fondazione, a public-private partnership that manages the RIS Ticino under the New Regional Policy (NRP), is the innovation agency of southern Switzerland supporting companies and start-ups in Ticino through specialised support services and networking opportunities. AGIRE coordinates innovation and research infrastructures such as the Technopole and the Innovation Park Ticino. TiVENTURE provides seed capital and mentorship to start-ups. The University of Italian Switzerland (USI) and the University of Applied Sciences and Arts of Southern Switzerland (SUPSI) have competence centres and provide support to start-ups. There are important business associations like AITI, the industrial association, or TICINOMODA, the business association for fashion.

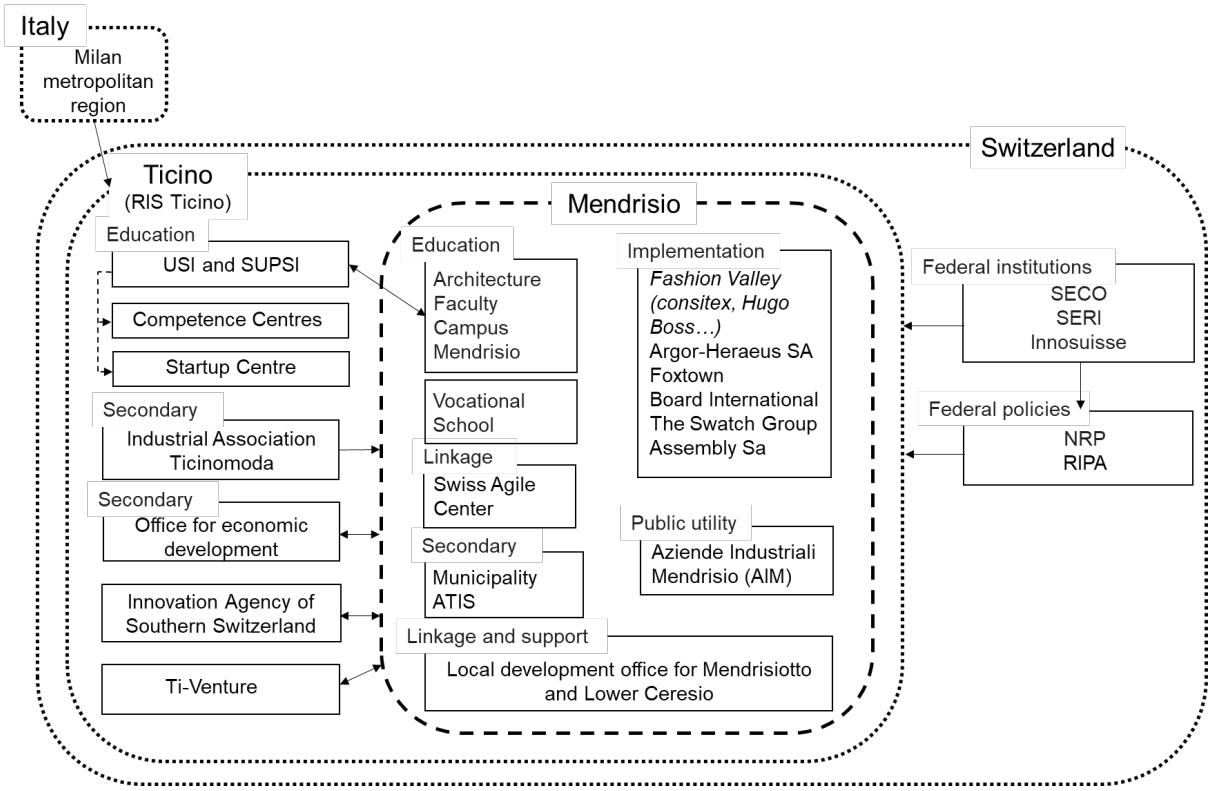

Figure 52. Mendrisio's regional innovation system. Source: the authors

Mendrisio's innovation system represents the administrative border of the Mendrisio district that contains 50,342 inhabitants over 11 municipalities—Balerna, Breggia, Castel San Pietro, Chiasso, Coldrerio, Mendrisio, Morbio Inferiore, Novazzano, Riva San Vitale, Stabio, and Vacallo (BFS, 2021e). Being located at the Swiss-Italian border, the Mendrisio district is an important industrial, transportation, and logistic hub with strong linkages with Milan and Italy. In 2019, Mendrisio district has 25,517 cross-border workers out of the 45,816 employed, representing more than half of the total workforce (BFS, 2021e). The Mendrisio district has a large secondary sector with 32% of the total person employed (compared to the cantonal value of 22%) and 67% of the total person employed in the tertiary sector (see Table 4).

The local development office for Mendrisiotto and Lower Ceresio is a public organisation in charge of the Mendrisio district's economic development. In 1996, the architecture university was established from the initiative of the architect, Mario Botta. In 2021, the University of Applied Sciences and Arts of Italian Switzerland (SUPSI) opened a branch with academic departments dedicated to construction and design. The Mendrisio district is home to many fashion brands such as Consitex or Hugo Boss, forming the so-called fashion valley (Franchini, & Lo Verso, 2016). Three out of the four largest Swiss gold refineries are in Mendrisio: Valcambi in Balerna, Pamp in Castel San Pietro, Argor-Heraeus in Mendrisio (Mariani, 2012). There is a large presence of light manufacturing companies such as Plastifil SA (USTAT, 2021). In 1995, FoxTown, a large shopping outlet with a casino, opened in Mendrisio. ATIS, the Ticino business association of shipping and logistic companies, is based in Chiasso.

5.4.3 Industrial development and economic shocks in Mendrisio

Until the late 19th century, Mendrisio was an agricultural town with some small spinning mills and no large factories. In the late 19th century, larger industries were established, such as Fonderia Torrani (1872), producing locomotive and machinery parts, or Torriani-Bolzani (1873), a spinning mill that employed up to 350 persons – mostly women from Lombardy. The town's industrialisation benefited from its proximity to the abundant Italian labour force and the inauguration of the railway line Lugano-Chiasso in 1874, and it accelerated with the opening of the Gotthard railway line and tunnel in 1882. In the early 20th century, textile industries and light manufacturing industries, such as Plastifil SA in 1934 and the zipper manufacturer Riri in 1936, were established in Mendrisio (Medici, 1980).

After World War II, the Ticino cantonal government took a more interventionist approach with the law of 1951 on industry and crafts, which promote industrial development and diversification from its low value-added sectors like textiles (Pilotti, 2006). Due to its strong linkages with Italy, which experienced an "economic miracle" during the period 1953-1963, the town of Mendrisio had a rapid industrial expansion with the location of heavier industries and population growth (Medici, 1980; Toppi, 1998). This industrial expansion continued until the 1973 oil crisis due to Ticino's economic, financial, and political stability compared to Italy (Toppi, 1998).

In contrast to the rest of Switzerland, Ticino resisted the economic shocks following the oil crisis of 1973 and 1979 better, due to its structural weaknesses and labour-intensive industries (Toppi, 1998). However, Ticino's industrial development did not reach the objectives of the law of 1951 and 1976 such as more industrial decentralisation (as there was still the concentration of industries in Lugano and Mendrisio districts), increased economic and industrial diversification (as there was still a high percentage of textile and watchmaking industries), bigger size (as there was still two-third of factories having less than 50 employees), higher skills (most industries using low-skilled cross-border workers), and the creation of higher value-added industries (Toppi, 1998).

Due to the globalisation process and increased global competition, Mendrisio went through a deep industrial crisis in the 1980s with the closure, offshoring, and restructuration of major industries such as Starlux, Autolux, Segoma, Riri, and Plastifil (Medici, 2006; Toppi, 1998). The population decreased from 6,590 in 1980 to 5,226 in 2000 (Historical Statistics of Switzerland, 2012; BFS, 2019a), the number of secondary sector workers from Mendrisio shrank from 2,075 in 1970 to 1,020 in 2000 (BFS, 2019a), and cantonal unemployment increased from 0.1% in 1973 to 7.8% in 1997 (BFS, 2021a). The cantonal government responded to the crisis by introducing a new industrial law in 1986 promoting innovation and higher-value industrial sectors with the creation of public-private intermediary organisations such as *Centro di Interfaccia per le Tecnologie Innovative* (CITI) (Pilotti, 2006; Toppi, 1998). Despite the industrial crisis, Mendrisio attracted companies such as Akris Linea B (textile), Diantus Watch (watchmaking), Solis Production (home appliance), or Argor-Heraeus (gold refinery) in the late 1980s and early 1990s, thanks to its location close to the border and the logistic hub of the neighbouring town of Chiasso (Medici, 2006).

In Mendrisio, the 1990s were characterised by the increasing importance of the service sector and financialization of the economy (Medici, 2006). Tertiary sector workers in Mendrisio increased from 1,578 in 1960 to 4'060 in 2000 (BFS, 2019a). The increasing importance of the service sector is illustrated by the opening of the shopping centre FoxTown and the casino Admiral in 1995 and 1997 respectively (Medici, 2006). Moreover, in 1996 under the leadership of architect Mario Botta, the Accademia di Architettura di Mendrisio (AAM) was established as a department of the Università della Svizzera italiana (USI). The financialization of the economy is illustrated by the deep transformation of the textile sector in Mendrisio. It went from structural crisis in the 1980s to the attraction of large multinational companies such as Abercrombie & Fitch, Armani, Hugo Boss, in the 1990s thanks to fiscal incentives and an accommodating tax regime to form the so-called "fashion valley" with international fashion brands. As of 2021, among all the textile companies located in Mendrisio, only Consitex still produces clothes; the others are all corporate offices (Franchini, & Lo Verso, 2016).

The relative decline of the industrial sector coincides with increasing environmental concerns from Mendrisio's population. In the 1980s and 1990s, Mendrisio district was frequently ranked as one of the most polluted Swiss regions due to the large number of commuters and industries (Medici, 2006). The municipal council launched several initiatives to promote public transportation and electric vehicles with the pilot project VEL1. In 1992, the Federal Office for Energy launched the VEL project to promote the use of electric vehicles and selected Mendrisio as a pilot town (Medici, 2006). In 2003, Mendrisio received the label city of energy to promote renewable energies and in 2008, became the first slow city, *Cittaslow*, in Switzerland to promote sustainable living and location-based wellbeing (Knox & Mayer, 2008).

The 2009 financial crisis followed by the Eurozone crisis in 2011 and the high Swiss Franc affected export-oriented industries and the service sector that relied on cross-border customers (Clementi, 2011). In 2016, Giorgio Armani, one of the largest companies in the "fashion valley," relocated its headquarters to Milan after 20 years in Mendrisio (Zantonelli, 2016). In 2016, the Mendrisio municipal council adopted "Strategy Mendrisio 2030," which put forward strategic objectives around sustainable development (City of Mendrisio, 2015). In March 2020, Mendrisio was greatly affected by the COVID-19 crisis due to the border closure, which limited the inflow of Italian cross-border workers and customers. There were, however, positive externalities such as improved air quality (Costantini, 2020). In 2021, the campus of Mendrisio-Station, hosting the department of environment, constructions, and design from SUPSI, was opened.

5.4.4 Economic shocks in Mendrisio – general overview

Town	Estimated time frame	Type of shock	Cause of shock	Pre-shock growth path[1]	Reaction to shock[1]	Adjustment to shock[1]	Post-shock growth path[1]	Type of economic resilience to the shock[2]
Mendrisio	1973-1979	Exogenous / economic	Oil crisis	Light manufacturing industries / heavy industry / textile / watchmaking	Restructuration, unemployment, foreigners' departure	Cantonal laws for industrial diversification	Light manufacturing, heavy industries	Recovery
Mendrisio	1980-1995	Exogenous /economic / slow burn / endogenous	Globalisation, The 1990s recession	Light manufacturing industries / heavy industry	Restructuration, unemployment, foreigners' departure	Diversification in the service sector, education, financialization through fiscal incentives, and innovation policies	Light manufacturing, logistics, financialization (corporate offices) and service sector	Recovery and path creation
Mendrisio	2009-2011	Exogenous / economic	The Eurozone crisis	Light manufacturing industries, financialization	Unemployment, socio-political tensions	Local policies for sustainable development, focus on higher	Light manufacturing, financialization, service sector, education/research	Recovery

[1] Roughly based on Regional economic resilience model by Martin & Sunley, 2015 (doi:10.1093/jeg/lbu015)

[2] Based on Martin, 2012 (DOI: 10.1093/jeg/lbr019)

				and service sector		value-added sectors		

5.4.5 Industrial culture in Mendrisio

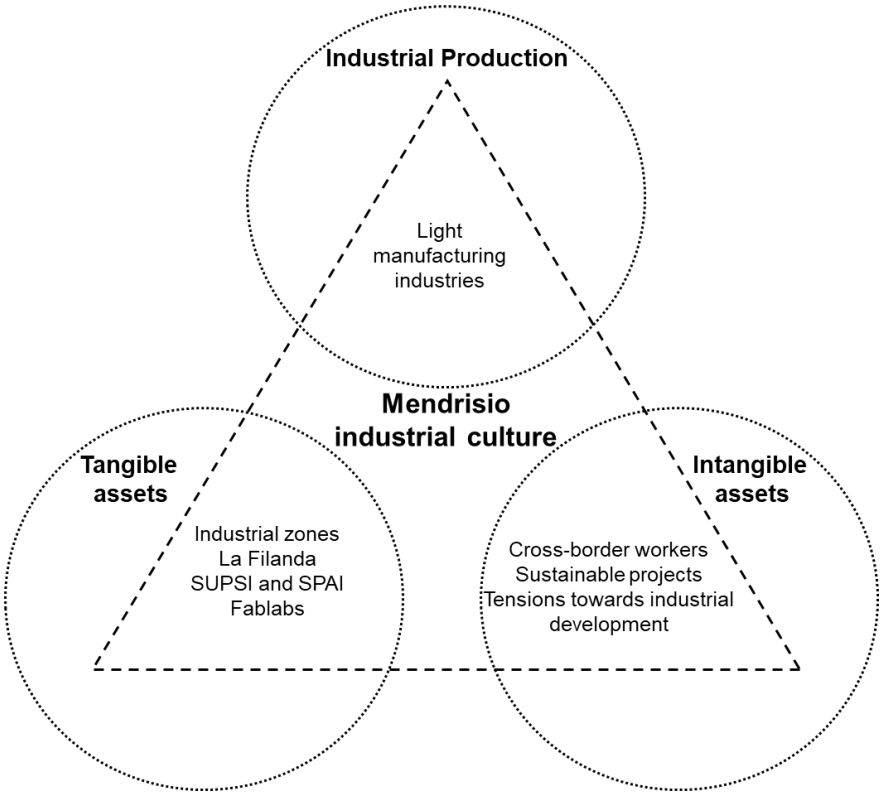

Figure 53. Distinctive elements of Mendrisio's industrial culture. Source: the authors.

The town of Mendrisio has a dense and visible industrial townscape ranging from light manufacturing factories to gold refineries and oil tanks, mostly located across from Mendrisio's railway station. Industrial zones represent 15.3% of the district of Mendrisio's total built area (Dipartimento del territorio, 2018). The most distinctive industrial heritage building in Mendrisio is La Filanda, the former textile spinning mill Torriani-Bolzani, which was restored in 1988 to convert it into the public municipal library. The town of Mendrisio has specialised higher education institutions that offer courses in the development of the industrial sector. In 2021, the University of Applied Sciences and Arts of Italian Switzerland (SUPSI) opened a branch with academic departments dedicated to construction and design. La Filanda and the SUPSI branch have FabLabs. The vocational centre of Mendrisio, SPAI, has 890 apprentices in 54 courses. The vocational centre is part of a large, CHF 900 million project to transform it into the Mendrisio study centre by 2030-2032.

The document Strategy Mendrisio 2030 aims to promote "competitive and sustainable development" (City of Mendrisio, 2015). The strategic objective 13 aims to maintain the balance between the industrial sector and the service sector to ensure stable fiscal revenues while promoting sustainable development and local employment. Despite the economic importance of the industrial sector and cross-border workers, Mendrisio's inhabitants largely vote against popular initiatives on industrial development, more immigration or greater integration with the European Union. Moreover, local initiatives to promote industrial and

economic development such as building more highway lanes or expanding industrial zones are sources of tensions between local and cantonal authorities and civil society associations. Cittadini per il territorio is a not-for-profit association emerging from the civil society to protect non-built areas from constructions such as in Valera or Parco del Lavaggio. The municipal council has also launched several initiatives to promote sustainable development such as VEL, city of energy, and Cittaslow (Knox & Mayer, 2008).

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