Exploring the dynamics of innovation: patterns of growth and contraction in the local food industry

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Abstract

Purpose – The purpose of this study is shed light on the underlying forces behind entrepreneurship within a regional innovation system (RIS) in a remote rural region. The authors examine the following questions: Which are the main underlying forces behind the entrepreneurial process in a rural RIS characterized by traditionally low-tech, small-scale businesses? How can the development of a low-tech regional innovation system be conceptualized?

Design/methodology/approach – The design of the study is based on entrepreneurship theory. Data analysis followed practices used in phenomenography, a research approach used to analyse and identify commonalities and variations in populations' perceptions of a certain phenomenon. Data are composed using semi-structured interviews and a database composed of company information of all firms in the population.

Findings – A proactive mobilization of regional stakeholders and resources can be an important driving force behind the entrepreneurial process and generation of a rural RIS. Innovation can be generated within low-tech industries turning the rural context into an asset. An RIS in a remote rural context can be initiated and orchestrated by regional authorities, but knowledge brokering and orchestration can also be managed by networks of small-scale businesses brought together by mutual benefit and common interests.

Research limitations/implications – Regional innovation systems theory is most often used to study high-tech industries. But by combining regional innovation systems with rural entrepreneurship and entrepreneurship context theory is a fruitful avenue to understand the role of rural entrepreneurship in regional development, even in remote and peripheral regions. Innovation does not need to entail high-tech international environments; it can appear as the result of efforts in low-tech industries in rural and remote environments. The authors' findings need to be scrutinized; therefore, the authors call for more research on regional innovation systems in rural environments.

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Practical implications – It is possible for regional authorities to orchestrate a development process through the actions of a strong regional agent but also by supporting the creation of networks of small businesses that are built on trust and common interests.
Originality/value – This study contributes to the literature with a new perspective to the study of entrepreneurship and of regional innovation systems. Entrepreneurship research with focus on rural contexts most often highlight limits to entrepreneurship and see entrepreneurship as "just running a business". A perspective that starts from innovation and innovative behaviour, despite the rural context and embedded resources, helps to generate new knowledge that can enrich the understanding of entrepreneurship and also be the foundation for more precise business development policies in rural settings.
Keywords Regional innovation systems, Rural entrepreneurship, Local food industry, Institutions
Paper type Research paper

1. Introduction

This paper examines entrepreneurial development at the regional level through the experience of a newly established industry – namely, the local food industry (LFI). The varying practices of entrepreneurship are analysed by highlighting phases of growth, stagnation and decline (Cantner *et al.*, 2021; Faggian *et al.*, 2019). Furthermore, the academic call to deepen our understanding of the context-specific differences that promote or hamper entrepreneurship is answered (Baker and Welter, 2020). The study centres on a comparison of two related branches within the LFI in a remote region with persistent economic development challenges.

A common goal for most regions is the development of industries that can spur economic activities (OECD, 2023). Hence, understanding the dynamics behind entrepreneurial development at the regional level is a key policy area for decision-makers and researchers seeking to address the challenge of sustainable regional development (Fernandes *et al.*, 2021). Previous research has shown that the generation of knowledge, the successful development and adoption of innovations and the articulation of policies and institutions that promote entrepreneurship are common factors associated with vibrant regional entrepreneurial processes (López-Rubio *et al.*, 2020; Suominen *et al.*, 2019).

In this context, one area of academic inquiry deals with the *Regional Innovation System* (RIS). Previous research has generally focused on the common denominators of success. Such research typically emphasizes technology-intensive industries in urban areas. However, the perspective of rural and remote regions – characterized by small-scale businesses, low-tech economic activities and the factors that lead to regional growth and decline – has largely been overlooked in the literature on RISs. Furthermore, *rural entrepreneurship* (RE) studies often focus on a local perspective, highlighting the empirical experiences of a few stakeholders. In most RE studies, the regional development perspective is often assumed but seldom adequately addressed (Fernandes *et al.*, 2021; López-Rubio *et al.*, 2020; Suominen *et al.*, 2019).

The purpose of this study is to shed light on the underlying forces behind entrepreneurship within a specific regional innovation system (RIS) in a remote rural region. We examine the following questions: What are the main underlying forces behind the entrepreneurial process in a rural RIS characterized by traditionally low-tech, small-scale businesses? How then might a low-tech regional innovation system be conceptualized, and ultimately, implemented?

Empirically, this research offers insights into the development of small-scale businesses within the local food industry over the last 40 years in a remote region of Sweden. Results are based on company data along with semi-structured interviews and are analysed using a phenomenography framework. The following sections offer a literature review and an associated conceptual and methodological discussion. Through these lenses, we present our results and draw conclusions, incorporating a discussion of the theoretical and practice implications of this research.

2. Literature review

The rise of the local food sector in recent decades has led to new opportunities for innovation, entrepreneurship, and economic opportunity in rural areas (Herrero *et al.*, 2021). Although several synonymous concepts have been used to describe this sector, we use the term local food industry (LFI). Regardless of the label, the LFI concept is rooted in notions of geographical and organizational proximity and the creation of links between producers and consumers (Burnett, 2023).

The state of academic play suggests several primary forces currently driving LFIs, which directly influence the way entrepreneurship is contextualized in these settings. These forces are (1) strong interest in decreasing the environmental impacts of local production and consumption of food, (2) consumer yearning for closer connections to where and by whom food is produced and (3) food nostalgia and negative market pressures exerted by global food chains on small-scale food production (Enthoven and Van den Broeck, 2021; O'Hara, 2011). The rise of LFIs is also correlated with consumer responses to food scares that have triggered an increasing demand for more sustainable forms of food production (Azzurra *et al.*, 2019). Moreover, quality has been redefined by consumers who now demand food that is produced close to where it is consumed with traceable origins and histories, or food with a sense of place (Burnett, 2023; Feagan, 2007; Kneafsey *et al.*, 2017; Lever *et al.*, 2019; Sjölander-Lindqvist *et al.*, 2020).

This trend has been reinforced by policy development focused on localized food and business development (Melak and Derbe, 2022; Jensen *et al.*, 2019; Şahin and Yılmaz, 2022). Examples include the creation of new markets for local food and new business models that enable producers and consumers to meet and exchange products, experiences and values (Rytkönen *et al.*, 2023). Moreover, LFIs have become an engine behind entrepreneurship and innovation in rural tourism through new services, products and ways of utilizing existing resources (Rachão *et al.*, 2019).

LFIs offer constructive opportunities to study entrepreneurial development processes at a regional level. It is a relatively new sector with a major influence on rural change (Lever *et al.*, 2019; Şahin and Yılmaz, 2022). Furthermore, the importance of LFIs was underscored during the COVID-19 pandemic through their ability to apply innovative solutions to disruptions in global food supply chains (Thilmany *et al.*, 2021).

LFIs are seen as an aligned mass of small businesses irrespective of the differences between firms and branches. Indeed, substantial interest has been devoted to the critical examination of policies that influence LFIs (e.g. Bowen and De Master, 2011) including new models of governance and policy formulation (Gonzalez De Molina and Lopez-Garcia, 2021; Lever *et al.*, 2019). Recent research indicates that studying entrepreneurship in the LFI offers a special opportunity to learn about rural innovation, innovative behaviour and entrepreneurial processes in rural and remote regions (Rytkönen and Oghazi, 2021).

2.1 Theoretical framework

Conceptually, LFIs are closely linked to entrepreneurship and innovation in various entrepreneurial contexts. This study's central idea bridges regional innovations system (RIS) theory, rural entrepreneurship (RE) theory and entrepreneurship context (EC) theory to analyse the dynamics of rural entrepreneurship in the local food system in a remote setting.

The study incorporates the context-specific attributes of rural entrepreneurship and examines how the regional and industrial characteristics, socio-cultural dimensions and institutions influence entrepreneurship in a rural context. A contextual view can help explore the dual nature of the rural context, identify challenges and opportunities presented to entrepreneurs and scrutinize how these dynamics contribute to the evolution of rural industries and influence rural development policies. Finally, the theoretical framework delves into creative destruction in entrepreneurship, investigating how innovative activities and risk-taking behaviour contribute to economic development and societal change in rural areas (Dhewanto *et al.*, 2020; Muñoz and Kimmitt, 2019).

2.2 Regional innovation system (RIS) theory

State-of-the-art research explains an RIS as the rise of an interrelated set of innovations within a geographic region supported by a defined institutional infrastructure (Kindt *et al.*, 2022; Malik *et al.*, 2021). Previous research explains success with RISs through the presence of technical leadership, managerial endowments for innovation and R&D and communities of practice (Malik *et al.*, 2021). Additional success factors are the formalized coordination of knowledge exchange, efficient allocation of resources, highly developed infrastructure and regional characteristics that favour cooperation (Fernández-Serrano *et al.*, 2019). A salient feature of an RIS is the robust connectivity and trust amongst regional actors and firms, which foster the exchange of tacit and formal knowledge and encourage innovations, often mediated through a knowledge broker. Geographical, social and technological proximity is an essential enabler of an RIS (Kindt *et al.*, 2022). In contrast to RISs in high-income regions, entrepreneurs in low-income areas are considered less innovative and develop low levels of trust (Asheim *et al.*, 2011; Fernandez-Serrano *et al.*, 2019).

2.3 Rural entrepreneurship (RE) theory

Entrepreneurship is pivotal in an RIS, driving economic growth by creating new ventures and innovations (Fritsch and Wyrwich, 2017). Entrepreneurship is defined as an economic activity where opportunities are exploited by combining resources, contributing to “creative destruction” and economic pioneering (Fritsch *et al.*, 2019). Entrepreneurship is linked to RISs through the intensity and frequency of start-ups fostered by a “regional culture of entrepreneurship” (Fritsch and Wyrwich, 2017), which includes historical experiences of entrepreneurship and self-employment at the regional or industry level (Fritsch *et al.*, 2019).

In this study, the emergence of an RIS is related to rural entrepreneurship. Studying entrepreneurship in the LFI contributes to understanding the dynamics behind rural enterprise and how innovations work their way through emerging rural industries (Gaddefors and Anderson, 2019). Moreover, understanding rural firms as part of contemporary societal change is crucial to designing more sustainable rural development policies (Muñoz and Kimmitt, 2019).

RE showcases distinct characteristics compared to urban entrepreneurship (Gaddefors and Anderson, 2019). The challenges encountered by RE include low population density, limited economic opportunities and skilled labour shortage, which are often exacerbated by the socio-economic distance to urban markets (Dhewanto *et al.*, 2020). However, rural landscapes present unique opportunities, such as commodification through tourism and social capital mobilization for local development (Muñoz and Kimmitt, 2019; Rytkönen and Oghazi, 2021). Remoteness and challenges concerning access to rural spaces can strengthen the sense of place and belonging of the local players and population, which can create benefits for local businesses through loyalty and local support (Nulleshi and Tillmar, 2022).

2.4 Entrepreneurship context (EC) theory

On-going debates about context have given rise to entrepreneurship context (EC) theory, which seeks to understand the multifaceted nature of entrepreneurship across varied contexts (Baker and Welter, 2020). EC scholars have proposed a typology encompassing industrial characteristics, spatial and temporal aspects, sociocultural aspects, and institutions to study the entrepreneurship context (Baker and Welter, 2020). The contextual dynamics profoundly impact entrepreneurial activities and demand a more nuanced and enriched perspective by studying entrepreneurship in various contexts (Baker and Welter, 2020; Muñoz and Kimmitt, 2019).

The synthesis of RIS, RE and EC theories provides a holistic and integrated theoretical approach to studying entrepreneurial development in rural contexts.

3. Methods and sources

The study design and method, sampling and data collection are grounded in entrepreneurship theory and the study of rural entrepreneurship (Pato and Teixeira, 2016). Through this entrepreneurial perspective, the design of the study is connected to RISs and EC theory.

3.1 The region and the sample

The study area is Jämtland, a Swedish region where the local food industry first became established. Jämtland is large, sparsely populated, and remote, located in northern, inland Sweden. Jämtland is characterized by small-scale farming, forestry and a prominent LFI (Regionfakta, 2023). Geographical conditions, distance from principal markets and the decimation of farms have forced local authorities to promote the small-scale production of food, from the late 1970s. An inventory of public business registries shows that small-scale dairies were the forerunners in local food development, while businesses in other branches were developed in large numbers after 1995.

3.2 Phenomenography, data and elaboration

Our data set was constructed from five interconnected research projects that employed qualitative methods (Rashid *et al.*, 2019). These projects were conducted between 2016 and 2022. They focused on the lived experience of different stakeholders engaged in entrepreneurship and local food in Jämtland. Two projects focused on entrepreneurship in the small-scale dairy industry, two focused on the underlying motives and perceptions as well as the long-term goals, challenges and opportunities behind start-ups in the craft-brewing sector, and a fifth focused on the perceptions of key rural development stakeholders at the regional level.

Data analysis followed practices used in phenomenography – a research approach used to analyse commonalities and variations in perceptions of a certain phenomenon (Hajar, 2021). Phenomenography is a non-software-based method offering a systematic protocol to identify themes and categories in semi-structured interviews and take qualitative analysis to a conceptual level (Hajar, 2021; Åkerlind, 2018). Phenomenography is useful in interview-based studies in various scientific disciplines. Data analysis was conducted through: transcription, identification of categories, comparing categories, contrasting categories, ranking and linking groups of categories into overarching themes and contrasting themes with the conceptual framework to identify commonality in and variation between the results and applied theories (Åkerlind, 2018), (see Table 1).

Interviews	Data collection period	Informant code
Representatives of all breweries	2017–2018	IB 1–16
Follow-up interviews with brewery representatives	2021–2022	IB 1–16
Small-scale dairy owners (20 out of 27)	2016–2019	ID 1–20
Follow-up interviews with 6 dairy owners	2022	ID 1–6
12 interviews with local and regional decision-makers	2022	KI 1–12

Table 1. Overview of the data

The sampling error was minimized by interviewing representatives from all breweries and 74% of dairies. Data processing generated seven categories that shaped the context-specific meaning of entrepreneurship for our interviewees – namely, the establishment of the LFI at a regional level, sector-based history, market conditions, demand patterns, threats and opportunities, institutions, regional support, regional policies, innovations, and innovative behaviour, development of knowledge and know-how, entrepreneurial culture, industrial networks, social capital, demand patterns, regional anchorage, and regional branding.

Additional data include public, regional and national reports. A database was compiled in 2022 using publicly available company data on all SMEs in the food industry in Jämtland, including yearly turnover, ownership type, number of employees, major events, mission statements and industry classification (Näringslivsregistret, 2022; Livsmedelsverket, 2022; Allabolag.se, 2022). This is referred to hereafter as "Database". We implemented data source triangulation to increase the study's validity.

4. Results

4.1 Establishment of the local food industry at regional level

After almost a century of national policies to promote rationalization and centralization in the food sector, the decimation of the local agro-food sector and depopulation in Jämtland had become self-reinforcing. In addition, small-scale farms decreased rapidly in numbers. The region is mountainous and located far from principal markets. Thus, there were many incentives to explore new avenues of local development (Eriksson and Bull, 2017). Despite subsidies to support local agriculture, migration to other Swedish areas forced regional authorities to look beyond prevailing rural policies and promote local and regional development in a new way. The County Board Administration (CBA) initiated a pioneering experiment promoting the emergence of small-scale food-producing firms, promoting self-employment among goat farmers, from the late 1970s (Rytkönen, 2016).

The initial policy goal was to promote start-ups and create new income opportunities for goat farmers in the region. Therefore, LFI forerunners were closely linked to the small-scale dairy sector (Rytkönen, 2016). However, over time, interest in developing other products (e.g. jam, bread, and charcuterie) grew when people realized that small-scale food production offered feasible business opportunities (Von Friedrichs and Skoglund, 2011).

A milestone was reached in 1977 when subsidies were granted to establish small-scale dairies on goat farms. Between 1982 and 1990, the CBA organized artisan food courses and supported study visits and the development of new products. Moreover, the CBA established a forum for knowledge exchange and the creation of producer networks for mutual help. In 1995, the CBA created a regional organization, Matora, to support the development of artisan food businesses in various branches. Matora became a cradle for new SMEs in the LFI by organizing study visits to foreign countries, food courses and creating meeting spaces to encourage networking between entrepreneurs. Matora changed its name to Eldrimner in 2003.

In 2006, Eldrimner became the national centre for artisan food, with a mission of promoting local artisan food firms nationwide. Between 2006 and 2012, all regional food organizations joined forces in the development project "Mer Värd Mat" (Value Added Food), offering a sales platform for SMEs to market food from Jämtland to national and international markets and developing a regional umbrella brand, "Smakriket Jämtland" (Jämtland Kingdom of Flavour). This project generated many start-ups. In 2010, the capital of Jämtland, Östersund, became an official member of the UNESCO City of Gastronomy Network. In 2011, Jämtland was awarded the title "Food Capital of Sweden" (Von Friedrichs and Skoglund, 2011). Finally, in 2018, the National Farmer's Association (regional branch), Eldrimner, Region Jämtland-Härjedalen, The CBA, Mid Sweden University and the Municipality of Östersund jointly adopted a regional food strategy.

Another factor influencing the development of local food was Sweden becoming an EU member in 1995. This changed the food market in Sweden. Agriculture was now regulated by the CAP. However, the level of competition from EU members, especially Denmark, created incentives to diversify farm activities. Farm diversification was further stimulated after the implementation of the 2003 decoupling reform (Rytkönen, 2016). Furthermore, the state-driven production and distribution monopoly for alcoholic beverages was abolished, enabling the establishment of privately owned alcohol production facilities (Sjölander-Lindqvist *et al.*, 2020).

Today, dairy sector development has slowed down, whilst the brewery sector is flourishing. Some key informants explain the decline in some branches of the LFI by the loss of regional coordination and the lack of large regional projects. One informant argues:

> We were the leading region in the country. That is how it used to feel, and we now live on old merits. I feel overwhelmed when I work outside Jämtland and talk to colleagues in other regions. Before we had Eldrimner, we also had quite large development projects. We were the first in the country with a food strategy. Today, it is not quite like that. Something is missing, and it is more at the coordination than the production level (KI4, 2022).

An additional reason behind a pessimistic view of the current state of the LFI is that many firms sell their products through local markets and festivals. All public activities were cancelled during the COVID-19 pandemic. Therefore, many firms were severely affected. The adverse economic effects partially remain because of inflation following the Ukraine war. Consumers spend less on items that they can refrain from using (ID 3, 5, 6, 2022).

In contrast, brewery numbers grew quickly in the last decade in response to an awakened consciousness regarding taste, quality, and sustainability. People are interested in local beer variations. This gastronomic richness is only offered by SMEs. Large firms offer more industrial and generic products. This corresponds with rising neolocalism (Sjölander-Lindqvist *et al.*, 2020). Jämtland fits well into this concept, where the number of local food firms per capita is high. However, Jämtland is peripheral, rural, lacking agglomeration and with large distances between settlements. One informant described the drawbacks thus:

> So, for this region, which is obviously much, much, much less populated than practically anywhere really . . .. growth is very difficult, isn't it? (IB 3, 2021)

In this article, we focus on long-term trends and explore two sub-sectors, one thriving (breweries) and one declining (dairies). In 2022, there were 16 breweries. Together, breweries generate 27 full-time jobs, in addition to income for their owners. Turnover records show that the sector's total income has increased over time. However, the lion's share of the industry's growth can be attributed to the largest producer, Jämtlands Bryggeri (Database).

Public data shows that 27 local dairies were established in the last 40 years, nine of which were closed down, mainly because the owners retired. The number of start-ups is greater than 27 because an unknown number were established within an existing company and consequently registered under the wrong industry code. Today, 15 dairies are active. The number of jobs created is 19. All firms except one are characterized by self-employment; only one is run as a part-time business (Database).

4.2 Breweries

4.2.1 Sector-based history. The home-brewing tradition in Jämtland is strong. However, the brewery industry became decimated following the state monopolization of alcohol production and distribution, and the restrictions in consumption implemented between 1917 and 1995. To circumvent restrictions, breweries developed a beer containing 4.5% ABV, which was sold in grocery stores. It was launched in 1965 but was banned in 1978, with many breweries going bankrupt. That left only one brewery in Jämtland, Till-bryggerier. It was outcompeted in 1992 (Sandberg, 2022).

The development of the Swedish craft beer sector has largely followed the same patterns as their American and British counterparts. Interest in craft beer was boosted by a boom in home brewing in the 1980s. In 1991, the home brewers' association called "The Fermentation Army" was established. This became the seed for establishing the National Home Brewing Association in 1994. Most commercial craft breweries were established by home brewers when the alcohol production monopoly was abolished in 1995.

Jämtlands Bryggeri was the first craft brewery established in Jämtland in 1997. Today, Jämtlands Bryggeri is the largest brewery, with ten employees and an annual production of around one million litres. It took several years before other breweries followed. However, in the 2000s, the number of breweries grew rapidly. In 2022, there were 16 commercial breweries in the region. Most breweries were established between 2017 and 2022, and only two were established before 2012. A few breweries were closed in the last decade. Thus, the craft beer market in Jämtland has followed the same growth pattern as the American and global craft brewery sector since 2003 (Elzinga *et al.*, 2015; Callejo *et al.*, 2019). Another feature that characterizes the Jämtland brewing sector is the strong passion for brewing:

> There was no developed strategy, it was more about brewing interesting beer and trying to sell it (IB 1, 2021).

Most breweries in Jämtland are small and either operated by the owners or one or two employees. For several informants, keeping the business small is intentional because many brewery owners have employment elsewhere, or are lifestyle entrepreneurs:

> Of course, we want to make money, but more important than becoming rich is a good lifestyle and life situation (IB 14, 2018).

4.2.2 Market conditions – threats and opportunities. The craft brewing sector in the United States has functioned as an example for Swedish craft brewers for numerous decades. As Alfaro (2022) reported, the craft brewing market in the US has exhibited substantial growth, capturing nearly 20% of the market share by 2019. In Jämtland, the market share has developed more slowly (Statistics Sweden, 2018; Bryggerier, 2020). This disparity highlights a possible route for enhancing the craft brewing scene in Jämtland. First-hand insights from industry experts support this possibility. These individuals emphasize the main competition from large-scale brewing corporations, which use economies of scale to offer significantly reduced prices. Furthermore, craft brewers set themselves apart with a strong inclination towards innovation, using ingredients such as barley, hops and malt to create a rich selection of beers and flavours. This nimbleness in experimentation exceeds the pace of innovation kept by industrial brewers, thus providing a unique competitive edge.

Nevertheless, the formidable marketing budgets of industrial brewers and their pervasive networks present a substantial barrier to entry, facilitating nationwide restaurant collaborations that are financially untenable for nascent craft brewers. Furthermore, industrial entities are often equipped to offer financial incentives and solutions to potential distributors, thereby exacerbating the sector's competitive dynamics.

Craft brewers accentuate their unique value propositions to navigate this landscape, emphasizing the quality and diversity in local flavour profiles, intrinsic to craft brews. Logistics is another difficulty for craft brewers, particularly in rural Jämtland (IB 9, 2019). This has led craft brewers to collaborate with sales channels that specialize in crafted beer, but these are relatively scarce:

> So, bars and restaurants are often interested at first, but then nothing happens, because it is so much easier to buy from (Carlsberg or Spendrups) the industrial producers (IB 8, 2021).

The fact that Sweden has an alcohol monopoly (called Systembolaget) is viewed with mixed emotions. Selling to Systembolaget is selling to the world's largest alcohol purchaser. Avoiding selling through Systembolaget can hamper growth opportunities for breweries:

> Systembolaget is our biggest obstacle and also our biggest opportunity . . . and it is not adapted to the rural and peripheral contexts up here (IB 11, 2019)

4.2.3 Institutions, regional support and regional policies. The Swedish alcohol monopoly revolves around Systembolaget, the state-owned alcohol retail company. Only Systembolaget has the legal right to purchase and sell alcoholic beverages containing more than 3.5% alcohol, except for bars and restaurants. This implies that partnering with Systembolaget can potentially open the entire Swedish market. Historically, this has not been straightforward. Recent regulations have permitted Swedish microbreweries to sell their beer through the five closest Systembolaget shops. If there is significant demand, a microbrewery might be permitted to sell to all 448 Systembolaget outlets. Some microbreweries deem Systembolaget essential for their business, whereas others see it as a hindrance. Additionally, many breweries regard the high and uniform alcohol tax as the main problem (IB 16, 2019).

Regarding institutional support, Eldrimner has been somewhat hesitant to support the sector. Microbreweries are viewed as too automated and the product of foreign ingredients. Many brewers have nevertheless participated in courses or study tours abroad arranged by Eldrimner.

4.2.4 Innovations and innovative behaviour, development of knowledge and know-how. Innovation is the key to surviving the intense competition from industrial brewers, costly transportation and sometimes tricky legislation and institutions. Developing new products is necessary to remain competitive:

> Most craft breweries are looking to the US for inspiration; that is where the sector has been able to break into the beer market in a big way (IB 3, 2021).

Another survival strategy is locating the brewery next to a brewpub. This enables the brewer to skip intermediaries:

> Today, you do not start a commercial brewery in Sweden without your taproom or restaurant (IB 11, 2019).

Complementing brewing with other innovative business dimensions by establishing a taproom or restaurant is a way for informants to reduce financial pressure and economic risk. Many informants look forward to a political decision allowing direct sales from the breweries. The challenges of competition, rurality and peripheral conditions force informants to innovate, and the foundation for innovative processes lies in continuous cooperation and learning between craft breweries in the region.

4.2.5 Entrepreneurial culture, industrial networks and social capital. A key strategy of Jämtlandic craft brewers is cooperation within the region. This entails joint transports, mutual purchases of barley and hops, "we buy our bottles through another regional brewery, and cooperate in purchases of hops and barley as well" (IB 13, 2019), working together at beer festivals and sharing beer recipes. Moreover, cooperation is linked to the shared passion for brewing and beer, explaining the social foundations of close cooperation. Brewers are interested in beer. They want to contribute to interesting beer production.

"It's an open culture where one helps each other out, I suspect 17 screw manufacturers would be completely different" (IB 14, 2018).

Intensive collaboration and networking are centred around breweries in the region. Cooperation is based on trust and social capital. Furthermore, brewers frequently partner with other local food enterprises. Such cooperation often leads to locality-based development. For many, local roots and connections are paramount. A recurring sentiment among informants is the drive to create opportunities for residents to remain and flourish in their home towns and villages. This sense of locality is often reflected in craft breweries' labelling, branding and marketing (IB 1–16, 2021–2022).

4.2.6 Demand patterns and regional anchorage and regional branding. The concept of neolocalism has been used in other studies to illustrate the renewed interest in local products, including beer (Sjölander-Lindqvist *et al.*, 2020). This is also relevant in the case of Jämtland and craft beer. Most of the barley and hops are imported from abroad, but the beers are still strongly connected to where the breweries are located:

> We have mountains and birds on our labels, all connected to this place (IB 16, 2019).

Moreover, company names are often connected to place −10 of the 16 sampled breweries use village names. Breweries market themselves and their villages and cities through their brands. One of the brewers even suggested that its company's brand could be among the most valuable regional branding efforts.

Local branding, product variation and a rich flavour catalogue is in line with recent changes in demand. Jämtland is an important tourist destination all year around. Tourists are interested in trying local flavours, but local consumers with strong emotional ties to the region are also important for local brewers (Box, 2017).

4.3 Dairies

4.3.1 Sector-based history. Small-scale dairies were the forerunners in the rise of local food in Jämtland. Historically, goat husbandry and goat cheese production have been important traditional economic activities. Homemade goat cheese was a staple in traditional diets. In 1977, the number of goat farms had declined to critical levels. The same year, the regional dairy, Nedre Norrlands Mejeriförening (later Milko), announced that they would terminate their goat cheese production in 1983. The CBA developed a support programme to help goat farmers establish their own production of goat cheese. The purpose was to shift from homemade production to small-scale industrial production of high-quality cheese (Stryjan and Fröman, 1991).

The CBA actively motivated people returning to the region (after living in a city) to start a small-scale dairy as a source of income. The CBA programme included developing local know-how through curdling courses organized using French expertise. Most new cheeses were, therefore, based on French recipes. Furthermore, a joint warehouse and sales organization was established, Jämtspira (Stryjan and Fröman, 1991). The new dairies received start-up subsidies and practical help on all business aspects. Eventually, cow-based dairy farms entered the arena of cheese production to cope with falling milk prices and a rising demand for locally produced cheese. In 1987, the CBA fully equipped two mobile dairies. These have multiplied over time. Mobile dairies are rented for two years for a symbolic sum so that start-ups experience a smoother introduction to the business and lower financial risk (Rytkönen, 2016). Today, Eldrimner rents its school dairy to micro-dairies, to help entrepreneurs capitalize while running part-time operations (ID 6, 2022).

4.3.2 Market conditions – threats and opportunities. In the beginning, there was no market for locally produced cheeses. The new businesses offered a different product, and consumers were suspicious of non-industrial cheese. It took a decade to open up a new market. One of the pioneers argued that:

> We were out slicing cheese into people's mouths. We took turns visiting markets to make our products known. We opened a new market one slice of cheese at a time (ID 5, 2016).

Another pioneer highlighted that:

> It was first at the beginning of the 1990s that we could sit back and just focus on our businesses rather than making customers understand the value of our products (ID 1, 2016; ID 6, 2022).

The market saw growth until 2011, when the regional dairy, Milko, was forced to merge with Arla Foods. Milko supported the establishment of small-scale diaries by facilitating refrigerated transport services to small-scale dairies at a low price. Moreover, Milko gifted a registered trademark, Vålåloffen, to the newly established cheese sales and warehouse organization, Jämtspira. Vålåloffen stands out as one of the few truly regional cheeses. Arla Foods entered the local food market in 2013 by introducing a new line of regional cheeses branded as "Jämtgård" (Jämtlandic farm) (ID 6, 2022).

Most small-scale dairies sell their products through markets, festivals or farm-gate stores. They have benefited from expanding tourism (ID 1, 2022). A key issue for most dairy owners is the physical challenge of running a dairy. Consequently, younger generations are not eager to take over these businesses (ID 1–20, 2016).

The dairy sector has lost momentum over time. Most dairies were established before 2010, and no dairy has been established since 2018 (Database). This can be a sign of market saturation, but some informants argue that, when Eldrimner became a national authority, the previous regional coordination and support offered by Eldrimner was lost. In recent years, no local firms have participated in the curdling courses offered by Eldrimner, and previous efforts to recruit new entrepreneurs to the local food industry have ceased (KI7, 2022). No regional entity has been able to fill the shoes of Eldrimner (ID 4–6, 2022). Thus, knowledge brokering has been lost.

4.3.3 Institutions, regional support and regional policies. Food production regulations constituted a key challenge for small-scale dairies. All food regulations were developed in the 20th century focusing on large-scale production. At first, it was common for health authorities to place unreasonable investment demands on small dairies – for example, building large locker rooms, even in dairies that lack employees, and much more (Informants 1–20, 2016). To overcome this institutional bottleneck, small-scale dairy owners joined forces with Eldrimner in the fight for legislative change (Rytkönen and Oghazi, 2021). In 2009, the first guidelines for small-scale dairy production were adopted (Eldrimner, 2009). This changed business conditions to fit the reality of small-scale firms (ID 1–20, 2016; ID 6, 2022).

4.3.4 Innovations and innovative behaviour, development of knowledge and know-how. The most important innovation developed by small-scale dairies was the establishment of a new market for locally produced dairy products, especially cheese. Over time, old recipes were revived and new local recipes, based on local knowledge and know-how, were developed. This was achieved through a partnership between the CBA, Eldrimner and dairy owners. Moreover, businesses have exploited opportunities offered by tourism and by digitalization. Businesses communicate extensively with their customers using social media. There are also examples of utilizing elements of the "shared economy" using crowdfunding and inviting customers to participatory activities (for example, curdling courses and excursions) (ID 1–20, 2016; ID 5–6, 2022).

4.3.5 Entrepreneurial culture, industrial networks and social capital. Eldrimner provided a platform for entrepreneurs to meet and to exchange knowledge and experience, which led them to establish a collegial rapport (Rytkönen, 2016). Informants argue that, when something goes wrong in the production process, they call a colleague. Indeed, some cooperate in solving transport issues and sharing costs for attending markets and fairs (ID 1–20, 2016–2019; ID 6, 2022).

Over time, dairy entrepreneurs have established cooperation and networks that are built on mutual benefit. The presence of social capital has shaped the dynamics in the sector and created a positive spill-over effect for the rest of the country (ID 1 and 6, 2022).

4.3.6 Demand patterns and regional anchorage and regional branding. Gradually, the appetite for local cheese has grown. Prior research suggests that most cheese sales target tourists, with most consumers having a direct or indirect link to Jämtland. Intrinsic qualities, such as taste and aroma, are significant in buying decisions. Contrarily, the price does not seem to carry as much weight. Some consumers are motivated by postmodern values, such as environmental concerns. The allure of buying Jämtlandic products provides an opportunity to meet the producer. Another motivation for purchasing is bolstering the local community (Rytkönen, 2016).

Since most entrepreneurs meet their consumers, their value proposition aligns with consumer-driven values. Presently, many entrepreneurs incorporate regional characteristics, imagery of fauna, landscapes and the name of the production locale on their product labels. The narrative often draws upon local culture and history (ID 4, 2022).

5. Discussion and conclusions

This study shows that a proactive mobilization of regional stakeholders and resources can be an important driving force behind the entrepreneurial process and generation of a rural RIS. Innovation can be generated in low-tech industries turning the rural context into an asset. Results indicate that an RIS in a remote rural context can be initiated and orchestrated by regional authorities, but knowledge brokering and orchestration can also be managed by networks of small-scale businesses brought together by mutual benefit and common interests.

5.1 The regional innovation system, rural entrepreneurship and the entrepreneurship context

Our results indicate that, even in the rural context, it is possible to develop a renewed entrepreneurial culture that embraces risk and uncertainty, and that promotes innovation and innovative behaviour, thanks to the coordination efforts of regional agencies. A future focus on coordination, defined as the organized, conscious effort to articulate and manage entrepreneurial networks, local resources and knowledge flows, and to channel innovative behaviour – for example, innovation orchestration – can contribute to the conceptualization of an RIS in a rural context.

Our study confirms that the key role of knowledge brokering is central to an RIS. Whereas previous research defines brokering as a function performed by a prominent agent (university, dominating firm, or state agency), our results indicate that knowledge brokering can be performed by less formal producer networks in which producers help each other forward. Thus, social aspects and social capital are potentially as important as more organized knowledge brokering in articulating an RIS in remote, rural regions.

Furthermore, innovation and innovative behaviour are important in a rurally based RIS. The most path-breaking innovation is the opening of a new market for local food. Moreover, there is plenty of innovative behaviour. The studied examples show that imitation can play a role in the entrepreneurial process and that rural entrepreneurial development takes place despite embeddedness in local resources. The articulation of the LFI is partly the result of institutional change, but entrepreneurial activities have also generated institutional change, altering market conditions to a point of no return. Regional authorities have supported the latter.

An important feature of the LFI is the dominance of small businesses, which in this case is greatly influenced by the lack of economic and geographic agglomeration. In the said context, entrepreneurs minimize risk by establishing strong, social, collaborative ties based on mutual benefit. Strong social ties and a collegial identity have helped bridge physical distance between businesses. Regional identity provides a common identity platform in which consumer loyalty is promoted. Producers can, therefore, commodify regional characteristics by using them in marketing and storytelling. Finally, challenges can be overcome, and opportunities can be exploited by the dynamics of the RIS. But when orchestration is lost, economic momentum tends to dissipate, with industrial decline as the inevitable consequence.

5.2 Policy implications

The examples we have highlighted show that knowledge brokering can be solved through the collective action of several SMEs. An important lesson for decision-makers is that it is possible to orchestrate a developing process, but long-term sustainable economic development may require the permanent presence of a supporting agency. In such cases, the loss of coordination and support runs the risk of triggering industrial decline.

Furthermore, gaps in regional institutional infrastructure can be bridged through strong local cooperation built on trust and a common interest promoted by social capital. This was essential for surmounting institutional difficulties and successfully transforming inefficient institutions.

Spatial aspects are central. Results show that, despite the region being sparsely populated and remote, it was and still is a natural boundary within which cooperation, trust, and collective action are based. Furthermore, regional characteristics are essential to develop products and recipes, and to market local firms, of which storytelling is a vital component. In this respect, local resources of various types are successfully commodified. The local and regional image is constrained when most inputs are imported. Thus, a key local asset is the producer's know-how. All the above lessons are imperative when designing rural development policies.

5.3 Implications for future research

This study identified the study of RISs in remote rural areas and low-tech industries as a promising research avenue. Such research can shed new light on our understanding of entrepreneurship in rural contexts and also offer insights pertinent to policy development. An exploration of various types of orchestration and the brokering function can contribute to the conceptualization of the RIS, RE and the EC. Our results indicate that the brokering function in the RIS can be performed by strong entrepreneurial networks fortified by social capital and a robust regional identity. However, these judgements need to be subjected to further scrutiny.

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