

## EVOLUTION OF ALTERNATIVE FOOD NETWORKS IN AN OLD INDUSTRIAL REGION OF CZECHIA

VLADAN HRUŠKA, ONDŘEJ KONEČNÝ, ZDEŇKA SMUTNÁ and BARBORA DUŽÍ

With 4 figures and 5 tables

Received 5 March 2020 · Accepted 22 June 2020

**Summary:** The main aim of the article is to present a regional analysis of alternative food networks (AFNs) in the old industrial Moravia-Silesian Region in Czechia accompanied by an assessment of their extent, the basic characteristics of their constituents and evolution during the period between 2014–2018. Although a number of studies on AFNs have been published so far, a detailed geographical analysis of AFNs from the regions of Central and Eastern Europe is missing. This paper aims to fill this research gap by providing an in-depth regional analysis of AFNs' spatial distribution while covering both the production (farms integrated in AFNs) and consumption side of 'local' food (selected forms of its distribution). Based on selected publicly available databases, we revealed that the proportion of farms integrated in AFNs out of the total number of farms in the region was only 1.4% (or 5% of the total number of organic farms) in 2018. However, significant growth in the number of farms producing food for AFNs and on site farm sales was registered within the monitored period. Only one third of AFN farms can be considered as small farms (up to 10 ha). AFN farms dominantly focused on animal production and were concentrated mostly in the proximity of urban areas favourable for agriculture. The low number of identified farms might be explained, inter alia, by the higher intensity of food self-provisioning in the region.

**Zusammenfassung:** Im Fokus dieses Artikels steht die regionale Analyse alternativer Lebensmittelnetzwerke (ALN) in der alten Industrieregion Mähren-Schlesien. Auf Basis von Daten zur Größe und Anzahl von Betrieben und grundlegender Merkmale ihrer Bestandteile, wird die Entwicklung im Zeitraum zwischen 2014–2018 betrachtet. Obwohl zahlreiche Studien über ALN vorliegen, fehlen noch immer detaillierte Analysen zu den Entwicklungen in Mittel- und Osteuropa. Mit diesem Artikel, der eine tiefe regionale Analyse der ALN sowohl auf der Produktionsseite (landwirtschaftliche Betriebe, die in die ALN integriert werden) als auch auf der Verbraucherseite (ausgewählte Formen der Distribution von ‚lokalen‘ Produkten) leistet, möchten wir diese Forschungslücke schließen. Recherchen in öffentlich zugänglichen Datenbanken belegen, dass 2018 der Anteil von ALN-Farmen im europäischen Vergleich auf einem sehr niedrigen Niveau lag (nur 1,4 % und 5 % bei Ökofarmen). Auf der anderen Seite konnte ein Wachstum der Anzahl von Farmen als auch Hofläden registriert werden. Nur ein Drittel der identifizierten Farmen sind kleine Betriebe (kleiner als 10 ha). ALN Farmen konzentrieren sich meistens auf Tierhaltung und sind in der Nähe von größeren Städten verortet. Hier herrschen oft bessere natürliche Bedingungen für die Landwirtschaft. Die im Vergleich niedrige Anzahl der Farmen könnte u.a. mit dem relativ hohen Anteil von Selbstversorgern zusammenhängen.

**Keywords:** Czech Republic, Moravian-Silesian Region, alternative food networks, farms, old industrial region

### 1 Introduction

Since the 1990s, a combination of interrelated processes has contributed to a change in consumer and eating habits of certain social groups in the developed world. Above all, there has been a growing environmental consciousness as well as a growing interest in questions about health and animal welfare. This change was further fuelled by consumers' growing distrust of conventionally produced food due to the ever-growing number of food scandals since the 1970s and fears of genetically modified organisms (MORRIS and BULLER 2003; RENTING et al. 2003). As a result, consumers increasingly reject the mass-produced, 'placeless and faceless' food of conventional agriculture (GOODMAN and GOODMAN 2009) and

consequently, space has opened up for new forms and new chains of production that provide consumers with greater confidence in the quality of any given food product.

In the EU discourse of rural development, this 'new space' should especially benefit small farms which were formerly regarded in the productivist logic as a relic of the past (WOODS 2011) or "impediments of the progress of the modern state and an effective market economy" (GOSZCZYŃSKI and WRÓBLEWSKI 2020, 256). These farms should take advantage of this opportunity and expand into new market niches to re-gain control over their flows of added value which has been increasingly taken over by large food processors and retailers (ILBERY and MAYE 2005). By offering high-quality local food and organic products

through alternative, non-conventional and more direct ways of distribution, they integrate in so called alternative food networks (AFNs). Indeed, in 2012 about 15% of European farms declared their integration into an AFN (EU 2012), and about 20% of production was marketed locally (COMMITTEE OF THE REGIONS 2011).

However, local ways of food production and distribution have been quantitatively and qualitatively distributed spatially very unevenly across individual countries and regions and we do not know very much about these spatial patterns of AFNs (RICKETTS HEIN et al. 2006). DANSERO and PUTTILI (2014) argue that a territorial approach to AFNs' research is useful from a comparative perspective because there are different forms of AFNs throughout the world (e.g. more embedded AFNs in southern European countries is in contrast to more commercial forms in northern Europe and in the US) and due to the fact that such research could reveal possible connections within AFNs or between AFNs and conventional food systems. Although some studies providing geographical analysis of AFNs have appeared since the 2000s, MORRIS and BULLER (2003, 560) argue that "much of the activity surrounding the issue (of local food – added by authors) exists at the level of advocacy, rather than in relation to detailed empirical research into the extent and impact of local food initiatives or analysis of this evidence and the development of critique. ... lack of evidence about the existing and emerging contours of the local sector is a problematic feature of the debate". Despite some progress achieved by other studies (see below), we argue that we still know very little about the extent and geography of local food production in different socio-cultural and economic contexts. Therefore, the main ambition of this paper is to show a detailed geographical picture of AFNs of the until now, less known context of the rather economically lagging, old industrial areas located in the post-socialist countries. We will introduce a time-spatial analysis of AFNs' constituents in the Moravian-Silesian Region (*Moravskoslezský kraj*, hereinafter referred to as MSR) in Czechia. The selection of this area for our empirical case study is based on the argument that MSR is an intensively transforming old industrial region (RUMPEL et al. 2010) combining both highly urbanised lowland regions and sparsely populated mountainous rural regions. Moreover, it will be interesting to analyse the production of 'local' food in this region because, similarly as in other central and eastern European countries (CEE), in MSR we can observe a significant level of food self-provisioning based on a relatively high number of allotment gardens and home gardening.

Therefore, this paper addresses the following research questions: What is the extent and spatial distribution of AFNs' constituents in an old industrial and post-socialist region? Subsequent research questions focus on some specific aspects of AFNs: What are the key characteristics of farms engaged in AFNs? Which forms of AFNs do the farms employ in order to sell their food products? Which significant changes and trends can be detected in the development of AFNs after their first boom period which occurred about five to ten years ago in Czechia?

## 2 Alternative food networks

### 2.1 AFNs and research specifics in Central and Eastern European countries (CEE)

Since the 2000s, these newly emerging alternative ways of food production and consumption have been conceptualised by scholars as AFNs or short food supply chains (SFSCs) (e.g. GOODMAN 2003; RENTING et al. 2003; MAYE et al. 2007).<sup>1)</sup> In general, AFNs are understood as an 'alternative' to global and large-scale agriculture, focusing on more sensitive and environmental ways of farming and applying a more social and direct relation between farmers and consumers (MAYE and KIRWAN 2010). On the other hand, critics of the AFNs concept argue that in practice it is difficult to distinguish between alternative and conventional food networks (ILBERY and MAYE 2005; RICKETT HEIN and WATTS 2010). FILIPPINI et al. (2016) argue that some small farmers in the Pisa region in Italy apply the so called 'hybridisation' strategy (supplying both alternative and conventional food chains from one farm). Similarly, recent studies have called for the integration of other kinds (informal, non-commercial) of food production - not only those at the farm level but other various ways of food self-provisioning at an individual or family level (e.g. SMITH and JEHLIČKA 2007, 2013; VÁVRA et al. 2018; BLUMBERG et al. 2020).

<sup>1)</sup> Most scholars use the terms AFNs and SFSCs interchangeably and don't perceive any significant difference between them. However, RENTING et al. (2003, 394) argue that the SFSCs' concept is more specifically focused on the interrelations between actors involved in the production, processing, distribution, and consumption of new food products. These relations might not be necessary short as regards physical distance, but short in the context of psychological and informational distance between producer and consumer. Within this paper we agree with BLUMBERG (2018) and consider both concepts as synonyms, however, when quoting other authors, we use the term which they applied in their studies.

This is especially relevant in the context of non-Western countries. As regards the debate on AFNs in CEE – the traditional perception of this region is considered as being a little behind the schedule of AFNs' evolution. Indeed, CEE researchers entered the scientific debate later – approximately since 2010. Nevertheless, this region has a long and still vital tradition of food self-provisioning (dispersed both in rural and urban areas, especially in allotment gardens) and self-sufficient and semi-subsistence farming (the latter is not the case in Czechia) due to the incomplete socialist industrial transformation, the shortage economy, problems within the food industry and the poor quality of food (GOSZCZYŃSKI and WRÓBLEWSKI 2020). Despite their recent decline, they still contribute significantly to the production of local food (TÓTH et al. 2018; SOVOVÁ and KRYLOVÁ 2019). VÁVRA et al. (2018) found out that in selected western European countries (the Netherlands, UK and Germany) about 14 to 38% of the population grew their own food, whereas in post-socialist Hungary and Czechia it was between 40 and 48% (with higher levels in rural areas). Moreover, the analysis of food self-provisioning confirmed a high level of sharing, exchanging and gifting of food products which refers to a significant level of the non-commercial character of these practices (JEHLIČKA and DANĚK 2017) and distributes local food also among people who have no access to its production.

## 2.2 Classification of AFNs

As it was suggested in the previous section, AFNs are originally a Western concept focusing on the sustainability of food systems which might be not very sensible in the context of other world macro-regions such as developing countries (ABRAHAMS 2006) or CEE countries. From this point of view the relation of food-self provisioning to AFNs has not been clarified despite its high importance for CEE and other world macro-regions. Usually, in the literature (apart from a few recent studies such as BLUMBERG et al. 2020 or GOSZCZYŃSKI and WRÓBLEWSKI 2020) the scope of AFNs is limited only to commercial food production – it means it reflects only the relation of the producer (farmer) and consumer who are separate entities (see overviews by RENTING et al. 2003; KNEAFSEY et al. 2013; GOODMAN 2004).

There are many types or forms of AFNs' constituents – they are classified in some studies which offer typologies of AFNs or SFSCs. RENTING et al. (2003) stress the key aspect of SFSCs rests on the

basic precondition that there must be a straight producer-consumer relation which gives 'clear signals on the provenance and quality attributes of food and (constructs – added by authors) transparent chains in which products reach the consumer with a significant degree of value-laden information' (RENTING et al. 2003, 398). As a consequence of such a definition, they define 'face-to-face SFSCs' delivering 'local' food (via direct purchase from the producer or processor), 'proximate SFSCs' (no direct contact between producer and consumer but food is sold in the region of production and consumers recognise its 'local' character) but also geographically long chains - 'extended SFSCs' - using certification labels, production codes and reputation effects which guarantee transfer of the value-laden information about a given product which can then be sent out of the region of its origin.

A more recent study by KNEAFSEY et al. (2013) builds on this typology, however, in their classification they stress the spatial dimension of various forms of AFNs. Their typology offers similar means of connections between a producer and consumer which transfer food products traceable back to a producing farmer. However, contrary to RENTING et al. (2003), they do not include the 'extended SFSCs' and stress a more direct and geographically closer relation between the producer and consumer. Their classification is presented in Tab. 1.

## 2.3 Research on AFNs: challenge for a geographical approach?

Empirical studies based on geographical approaches (GRANVIK et al. 2012; PÖLLING and MERGENTHALER 2017; HRABÁK and KONEČNÝ 2018) have gradually complemented the diverse spatial typologies of rural space and multifunctional agriculture (MARSDEN and SONNINO 2008; WILSON 2008, 2009; HOLMES 2012). Although AFNs are associated with strong multifunctionality (WILSON 2008; JONGENEEL et al. 2009; RENTING et al. 2009; KIZOS et al. 2011), research of the geographical constitution of AFNs based on individual farm data is waiting for its deeper application. Typologies of farms or modes of agricultural production (HOLMES 2006, WILSON 2008, 2009) recognise the higher potential of metropolitan areas for the integration of farms into AFNs. This might be also demonstrated on the number of studies of AFNs focusing on urban/metropolitan areas – these dominate the regional research of AFNs (JAROSZ 2008; BERNER et al. 2019; FILLIPINI et al. 2016) in comparison to studies of

Tab. 1: Classification of types of AFN (based on KNEAFSEY et al. 2013, own compilation)

Community supported agriculture (CSA)	
	- farm shops
<b>On farm sales</b>	- farm based hospitality
	- roadside sales
	- pick-your-own
<b>Sales in proximity</b>	- farmers' markets and other markets
	- farmer owned retail outlet
	- food festivals / tourism events
<b>Off farm sales</b>	- sales directly to consumer co-operatives / buying groups
	- sales to retailers
	- sales to hospitality and catering providers and restaurants (HoCaRe)
	- sales to hospitals, schools etc.
<b>Farm direct deliveries</b>	- delivery schemes (e.g. veg box)
<b>Sales at a distance</b>	<b>Farm direct deliveries</b> - delivery schemes, internet sales, speciality retailers

AFNs in peripheral rural areas. Nonetheless, BARBERA and DAGNES (2016, 328) argue that “even if many of the observed initiatives are quite widespread in the region, the metropolitan area plays a central role in fostering and activating the AFN”. Therefore, the size of a potential market seems to be the most important factor of AFN development.

On the other hand, demanded AFN commodities (meat, organic livestock products) are frequently produced in more distant rural and mountainous areas (JAROSZ 2008; KONEČNÝ 2017). Similar findings were also registered by RICKETT HEIN et al. (2006), who proved using the example of England and Wales that the quantity of local food producers does not correlate with the quality of agricultural land – top ranked counties were endowed by a mix of prime and less favoured agricultural areas.

ILBERY et al. (2006) map and analyse the extent and distribution of local food activity in the South West and West Midlands regions, UK. Farmers mostly focus on mainly unprocessed food such as horticultural products, and then dairy, meat and eggs. Within both regions they identified substantial differences in local food activity. The authors suggest the most important factors of the concentration of local food activity are: the proximity to urban centres, the location on main transportation routes, farming structure and landscape designations. Apart from these general factors, they stress the role of traditional local food products around which clusters of food producers may emerge.

Probably the most influential paper focusing on the geography of local food systems was written by RICKETTS HEIN et al. (2006). In this paper the authors develop and implement an Index of Food Relocalization using the example of England and Wales. Later its modifications were implemented on Ireland and Great Britain (RICKETT HEIN and WATTS 2010); Scotland (WATTS et al. 2011) and Hungary (BENEDEK and BALÁZS 2016). This index quantifies both the production and marketing dimension of food relocalization. Partial indicators such as the number of local food directories, local food producers, organic farmers, farm shops, cooperative and farmers' markets were used. The most intensive food relocalization activity has been found in the English regions South West and South East while on the other hand, in the old industrial regions of England, Scotland and Wales its level was average or below-average (RICKETTS HEIN et al. 2006, RICKETT HEIN and WATTS 2010).

### 3 Data, methods and definitions

In this study we will employ the traditional definition of AFNs (see the discussion in the section 2.2) and focus only on market-driven relations between producers (farmer) and consumers. However, we do recognise the importance of food self-provisioning in Czechia as it can significantly influence the de-

mand for both alternatively and conventionally produced food. As AFNs consist both of (1) producers and (2) individual forms of distribution as connections and ‘channels of trust’ between producers and consumers, we analyse both kinds of AFNs’ constituents on the example of MSR.

### 3.1 Defining and searching for farms integrated into AFNs

First of all, relevant producers for our research (in the text they are referred to as AFN farms) should follow these criteria:

- (1) They are farmers (registered economic subjects, small/family/large/organic/conventional farms etc.) operating on agricultural land and selling their products on the market. Thus, we did not explore other informal/non-commercial forms of food production.
- (2) They produce and sell final food products - both processed (meat, dairy products, etc.) or/and unprocessed (eggs, potatoes, fruit and vegetables) which can be purchased by end-use consumers. The ingredients for processed food had to be predominantly produced by them. We did not distinguish between producers of food bearing a special regional brand or certificate (such as organic food) and food without them – both were included.
- (3) They sell their products via at least one form of AFN (specified below).

Based on these criteria, we searched for AFN farms in MSR. The first research was conducted in 2014 - after the first boom of AFNs made especially visible by the rise of farmers’ markets in Czechia whose number had increased rapidly from the end

of the 2000s (ŠPILKOVÁ et al. 2016). Thus, the purpose of selection of 2014 was to cover the state of AFNs in MSR after the first wave of growth of AFNs. We repeated this research at the end of 2018 to reveal the dynamics of AFNs from a geographical and socio-economic perspective.

Unfortunately, there is no official and coherent database compiling farmers that offer their final products to AFNs (based on the definition above) in Czechia. On the other hand, mapping of AFNs has very often been (not only in Czechia) a target of non-governmental organisations and similar civic initiatives which increasingly promote AFNs and collect information mainly on a voluntary basis using the methods of citizen science; volunteered geographical information and crowd mapping method (HAKLAY 2013; DUŽÍ et al. 2019). For the year 2014, we used four state-wide databases and five for 2018. However, apart from the database of the Association of Regional Brands, other websites, for some unknown reasons, no longer existed in 2018 (Tab. 2). Another complication was caused by the fact that farms presented in these databases had not been updated properly by administrators of the given websites, therefore we had to verify the preliminary selection and look for further information about the selected farms on their websites, social networks or directly via e-mail or telephone communication in order to precisely assess their legitimacy to be considered as an AFN producer. Such an approach also had some limitations, as it cannot include farms which do not want to present themselves for some reason via these websites. Nevertheless, from our experience and knowledge of the region, their proportion was not higher than 10% of the total number of identified farms.

Tab. 2: List of databases of farms used for the analysis in 2014 and 2018

2014		2018	
Database	Website	Database	Website
Association of Regional Brands (information about Czech products labelled as ‚regional‘ (in 2014 and 2018 there were five regions with their own regional branding scheme in MSR)			<a href="http://www.regionalni-znacky.cz">www.regionalni-znacky.cz</a>
<i>Kupuj naše</i> (Buy ours)	<a href="http://www.kupujnase.cz">www.kupujnase.cz</a>	<i>Kam pro bio</i> (Where to go for organic food)	<a href="http://www.kamprobio.cz">www.kamprobio.cz</a>
<i>Najdi si svého farmáře</i> (Find your own farmer)	<a href="http://www.najdisisvehofarmare.cz">www.najdisisvehofarmare.cz</a>	<i>Bio-life.cz</i>	<a href="http://www.bio-life.cz">www.bio-life.cz</a>
<i>Nalok.cz</i>	<a href="http://www.nalok.cz">www.nalok.cz</a>	<i>Adresář farmářů</i> (Directory of farmers)	<a href="http://www.adresarfarmaru.cz">www.adresarfarmaru.cz</a>
		<i>Farma na dlani</i> (Farm on a palm)	<a href="http://www.farmanadlani.cz">www.farmanadlani.cz</a>

Concerning the further analysis of AFN farms, an AFN farm was considered as predominantly focused on animal or plant production when it is engaged in production of at least one category of food products such as meat, dairy product, eggs, or fruit, vegetable, cereal, potatoes respectively. Farms with mixed production combined at least one category from each group of food products.

### 3.2 Selection of AFN forms

Secondly, we analysed forms of AFNs used by farmers as distribution channels or consumers to buy food products. Using the typology of SFSCs by KNEAFSEY et al. (2013) (already applied and verified by Kneafsey and their colleagues in European conditions by their research project), we focused on the following forms of AFNs in MSR in 2014 (see Tab. 1):

- community supported agriculture,
- on farm sales - farm shops, farm-based hospitality, pick-your-own,
- off farm sales - farmers' markets, sales to retailers,
- farm direct deliveries - veg boxes.

Concerning the analysis of community supported agriculture and on-farm sales, we used the same sources used to identify AFN farms as mentioned above. Farmers' markets (as regularly organised events) were explored via municipal and regional websites and newspapers with a focus on the largest cities and towns in the region. Sales to retailers were difficult to analyse as currently there are many diverse shops offering at least one or more local food products (including transnational retail chains with their own 'local food counters'). Therefore, we analysed only retail units integrated in the national retail chains focusing on 'high-quality local food' (there are only two such chains in Czechia which grew via franchising - Sklizeno and Naš Grunt).

We haven't analysed other forms of AFNs for two reasons. First of all, in 2014 some forms of AFNs were absent in MSR (farmer owned retail outlets, sales directly to consumer co-operatives/buying groups, sales to hospitals, internet sales). Therefore, we had no benchmark for comparison with the spatial distribution of regional AFNs in 2018. Secondly, some of the forms of AFNs existed in MSR in 2014 but their spatial distribution was limited only to a few farmers/places (roadside sales, food festivals/tourism events, sales to HoCaRe, sales to schools) and since that year we have not registered a significant growth in the popularity of these forms.

## 4 Case study area: Moravian-Silesian Region

MSR is one of the 14 self-government administrative NUTS II regions located in north-eastern Czechia along the border with Poland and Slovakia. The core of the region is formed by the agglomeration around the city Ostrava (population approx. 290,000) surrounded by other functionally integrated towns such as Frýdek-Místek, Karviná and Havířov. About one tenth (1.2 mil. inhabitants) of the Czech population lives in MSR, with more than two thirds in the intensively urbanised Ostrava agglomeration (CSO 2019). During the industrial period of its development, Ostrava served as the national centre of coal mining, coke production, metallurgy and heavy engineering. As RUMPEL et al. (2010) argue, MSR represents a classic example of an old industrial region. Transformation from the centrally commanded economy under the communist regime to the market economy from 1989 launched extensive structural changes having serious economic and social consequences. As a result, MSR is one of the poorest regions of Czechia. In 2017, GDP per capita was only 75% of the EU-28 average. Similarly, the average gross monthly wage in the region is below the national average and the gap has increased since 2005.

The conditions for agriculture in MSR are below average in relation to the national level. Approximately 50% of land is used for agriculture; arable land comprises nearly 60% of agricultural land, while permanent grassland 32% (CSO 2019). 64% of agricultural land in MSR is classified as one of the categories of Less Favoured Areas (LFA), mostly due to the hilly western and eastern parts of the region dominated by the Jeseníky and Beskydy Mts.

Despite the intensive and complicated transformation of Czech and regional agriculture - accompanied by the processes of restitution, privatization and market liberalisation in the 1990s and later, by preparation for the EU entry (VĚŽNÍK and BARTOŠOVÁ 2004; JANČÁK et al. 2019, NAVRÁTIL et al. 2019) - several typical features remain, such as the negative heritage of the intensively industrialised way of agriculture, large evidence of soil degradation and the largest farm size structure in Europe. While the average area of agricultural land per farm in Europe is less than 20 ha, in MSR it was about 105 ha in 2017 (CSO 2019). In 2018, 4,008 farms operated in MSR, while 70% of farms managed agricultural land of up to 10 ha (CSO 2019). The proportion of farms operating in the organic regime is low (about 10% - 404 farms with an average size of 138 ha) but shows an

increasing trend and covers about one fifth of the regional agricultural land (MINISTRY OF AGRICULTURE OF THE CR 2019a). However, the growth of the organic sector is accompanied by some rather negative structural and spatial trends: (1) the dominance of organic farming on permanent grassland and the unused potential of arable land for organic production, (2) the territorial concentration of organic farming - 60% of organic land is concentrated in the western part of MSR in the Jeseníky Mts. (HRABÁK and ZAGATA 2020).

As regards the rate of food self-provisioning, unfortunately, there are almost no reliable data for MSR on home gardening, allotment gardens, etc. In 2012 there were about 19,000 registered members/allotment gardens (and many unregistered) of the Czech Union of Allotment and Leisure Gardeners (CUALG 2013) and, for example, Ostrava registered in the national comparison as having the highest proportion of the area of gardens under the CUALG of the total city area - 2.2% (SPILKOVÁ and VÁGNER 2018).

## 5 Results and discussion

In this section, we analyse the time-spatial development of AFN farms in MSR and their basic characteristics. We distinguish between the farms which operated both in 2014 and 2018 and call them 'Continuing farms'; whereas those which were registered in 2014 but hadn't been operating by 2018 we label as 'Non-continuing farms'. Farms which entered into AFN after 2014 are referred to as 'New farms'.

### 5.1 Structure of AFN farms

The increasing interest of Czech consumers in local food in the second decade of the 20th century was reflected in the increasing number of farms involved in AFNs in MSR. During the period 2014-2018, the number of AFN farms increased from 37 to 55 (cf. 5.3, Tab. 4). On the other hand, more than a third (14 farms) of AFN farms registered in 2014 left AFNs or ceased to operate and 32 new farms were identified in 2018. Therefore, in 2018, there were fewer continuing and 'more experienced' farms (23) than farms newly discovering the opportunities and challenges of AFNs (32) - for their spatial distribution, see Fig. 1. During the period 2014-2018, AFN farms showed different level of vulnerability/interest for their integration

into AFNs. According to our expectations, smaller farms appeared as more vulnerable in the competition with other producers or due to their own internal problems, left AFNs (based on our research, it was very often the unsuccessful intergenerational exchange of farm ownership).

Within the set of AFN farms, organic farms make up 38% (21 farms in 2018) of the total number with relatively stable dynamics during the period 2014-2018 (during this period only one organic farm left AFNs). As such, their proportion on the sample of AFN farms was much higher than their proportion on the total number of farms in MSR (10%). However, despite this fact, we consider as very problematical using the number of organic farms as a pillar of food relocalization indices as in the studies by RICKETTS HEIN et al. (2006) and other studies, or BENEDEK and BALÁZS (2016). In MSR organic AFN farms comprise only 5.2% of the total number of organic farms in the region which means that almost 95% (!) of organic farms in the region do not produce food for the local food systems. Very often their products (especially meat) are sold without organic certification via conventional food chains (59% of beef meat) or it is exported directly (26 % of beef meat production) or via Czech intermediaries to other EU countries (HRABALOVÁ and ZANDER 2006, MINISTRY OF AGRICULTURE OF THE CR 2019b).

It is also argued that small family farms have greater potential for integration in AFNs (GUIRAUD et al. 2014; SYROVÁTKOVÁ et al. 2015; BENEDEK and BALÁZS 2016) due to their focus on high-quality niche food as a necessary survival strategy. Our results do not confirm this statement. In MSR the average size of AFN farms in 2018 was 232 ha which is even more than the average for MSR. This is given by the presence of a few extremely large AFN farms; seven farms are larger than 800 ha, one of them is even larger than 2,500 ha (Fig. 2). On the other hand, more than one half of AFN farms are smaller than 50 ha and one third of AFN farms cultivated up to 10 ha of land. Similarly, organic farming is often related to small family farms in the literature, but their presence among the smallest farms (up to 10 ha) is negligible in MSR; this can be seen by the strong orientation of Czech organic farms on animal production and therefore the higher demand for large pastures (HRABÁK and ZAGATA 2020). The results, similarly as in the conditions of the UK (ILBERY and MAYE 2005; ILBERY et al. 2006), show that even large farms penetrate AFNs in order to diversify their distribution channels by focusing on

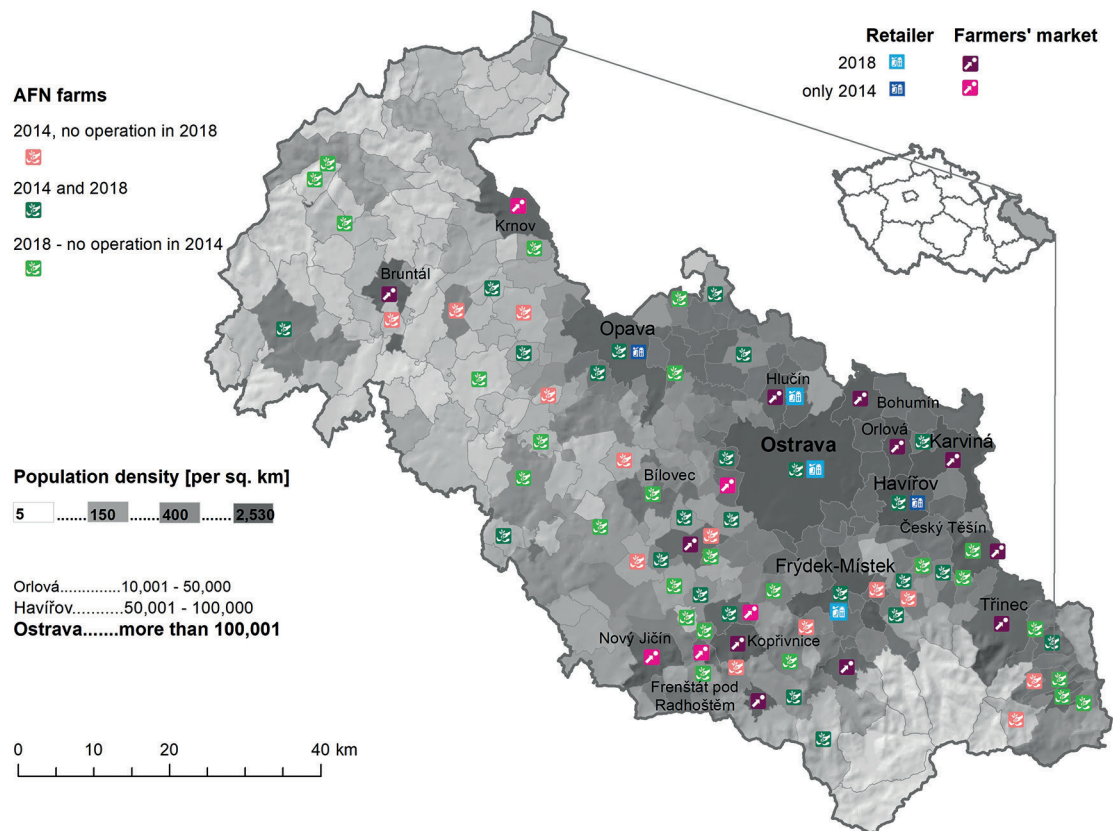


Fig. 1: Spatial distribution of AFN farms, retailers and farmers' markets in MSR in 2014 and 2018. Source: Own compilation, ArcCR 500 Vector Geodatabase.

market niche products. These findings correspond with FILIPPINI'S et al. (2016) argument on the hybridisation strategy applied by farmers.

## 5.2 Spatial distribution of AFNs' constituents

As regards the position of AFN farms on the urban-rural continuum, significant differences in spatial distribution are visible. Only 14% of farms operate in the core of the Ostrava agglomeration (Ostrava, Karviná district) but 3/4 of farms are situated on its outskirts (neighbouring districts Frýdek-Místek, Nový Jičín, Opava) with rather more favourable natural conditions for agriculture. During the research period, the concentration of AFN farms in urban and rural-urban areas evidenced growth whereas more rural areas faced a decline in the number of AFN farms (see Tab. 3). Thereby the results of other studies (e.g. HOLMES 2006; ILBERY et al. 2006; JAROSZ 2008; WILSON 2008; BARBERA and DAGNES 2016; BERNER et al. 2019; FILLIPINI et al. 2016) and the better condi-

tions of rural areas in proximity to urban centres for AFNs' development can be confirmed. On the other hand, AFN farms from the remote Bruntál district are poorly represented as the district is less accessible from the core areas of MSR and the population density, similarly as local purchasing power, is very low. AFN farms located in more remote rural areas appeared as the most vulnerable after 2014 as many of them left AFNs or ceased to operate. From the planning perspective this is a problematic tendency as the spread of AFNs occurs in already better developed rural areas whereas peripheral rural areas continue to lag behind.

Focusing on the natural conditions for agriculture, there is a relatively equal distribution between AFN farms in and out of the LFA. Continuing AFN farms are even more bound to the fertile (and also better accessible) rural areas (Tab. 3). New AFN farms are more often linked to mountainous areas. Regarding organic AFN farms (see Fig. 3), these operate in more remote localities with worse natural conditions for agriculture; more than 70% of organic AFN farms are situated



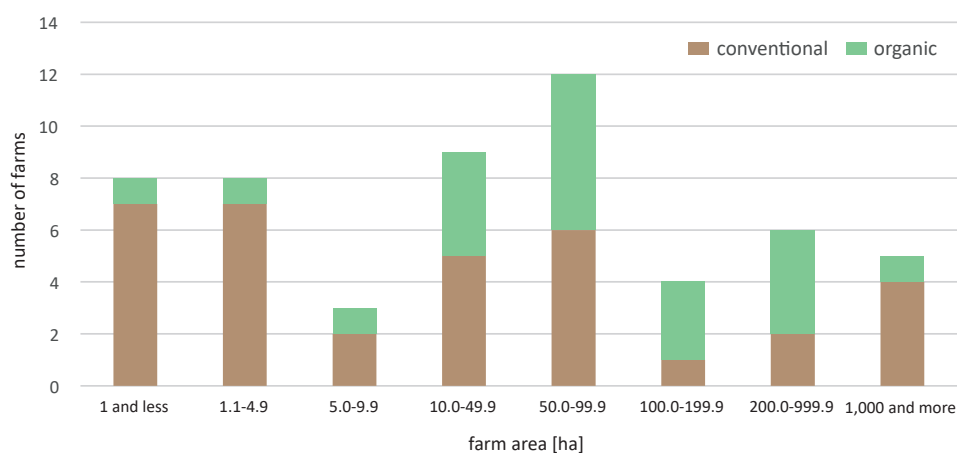


Fig. 2: Structure of AFN farms in MSR in 2018 according to their size and modes of production

in mountainous regions or areas with some specific limitations (LFA) (in 2014 it was only 43%) which also reflects national trends (HRABÁK and KONEČNÝ 2018; HRABÁK and ZAGATA 2020).

### 5.3 Production of AFN farms and distribution channels

In this section, in order to get a better view of the production structure of AFN farms, we analysed all farms in the database together (N=69), but we also clearly distinguished between non-continuing farms (N=14) and continuing farms in 2018 (N=55) to better indicate some evolutionary trends.

In total, the most frequent category is animal production represented by 33 AFN farms (63% of them localized in LFA), followed by 19 farms focusing on plant production (mostly outside LFA - 60%) and 17 farms with mixed production (Fig. 3). If we take a closer look at the evolution of farms, AFN farms focusing on animal production with higher value-added production seem to be more

resilient. In 2018, 30 of such farms still operated (3 farms which left AFNs specialized only in egg production). Only three out of 14 non-continuing farms applied some forms of food processing (cheese production). To sum up, in 2018 AFN farms focusing on animal production (55%) prevail over plant (27%) and mixed production (18%). Looking at the individual groups of food products, production of AFN farms was dominated by meat production (23 farms) whereas vegetable production in comparison to 2014 evidenced only slow growth (20 farms). More than one third (18) of AFN farms focused on dairy products. Several farms specialised in only one kind of product (ostrich meat and eggs, snail, turkey meat, raspberries, apples).

During the observed period, we can see evidence of AFN farms' endeavour to better capture added value. 39 AFN farms (71%) employed processing of the primary product in comparison to 50% of AFN farms in 2014. Most of the animal farms were equipped for the processing of their own products; they have available dairy rooms

Tab. 3: AFN farms according to population density and conditions for agriculture in MSR in 2014 and 2018

Share of AFN farms [%]	Rural	Rural-urban	Urban	Mountain LFA	Other and specific LFA	No LFA
2014 Non-continuing farms	71.4	28.6	0.0	14.3	64.3	21.4
2014 Continuing farms	58.3	25.0	16.7	12.5	29.2	58.3
2014 Total	63.2	26.3	10.5	13.2	42.1	44.7
2018 New farms	50.0	34.4	15.6	25.0	37.5	37.5
2018 Total	53.5	30.4	16.1	19.7	33.9	46.4

Note: Categories Rural (less than 150 people per sq. km) + Rural-urban (150-399 people per sq. km) + Urban (400 and more people per sq. km) equals 100%; categories Mountain LFA + Other and specific LFA + No LFA equals 100%

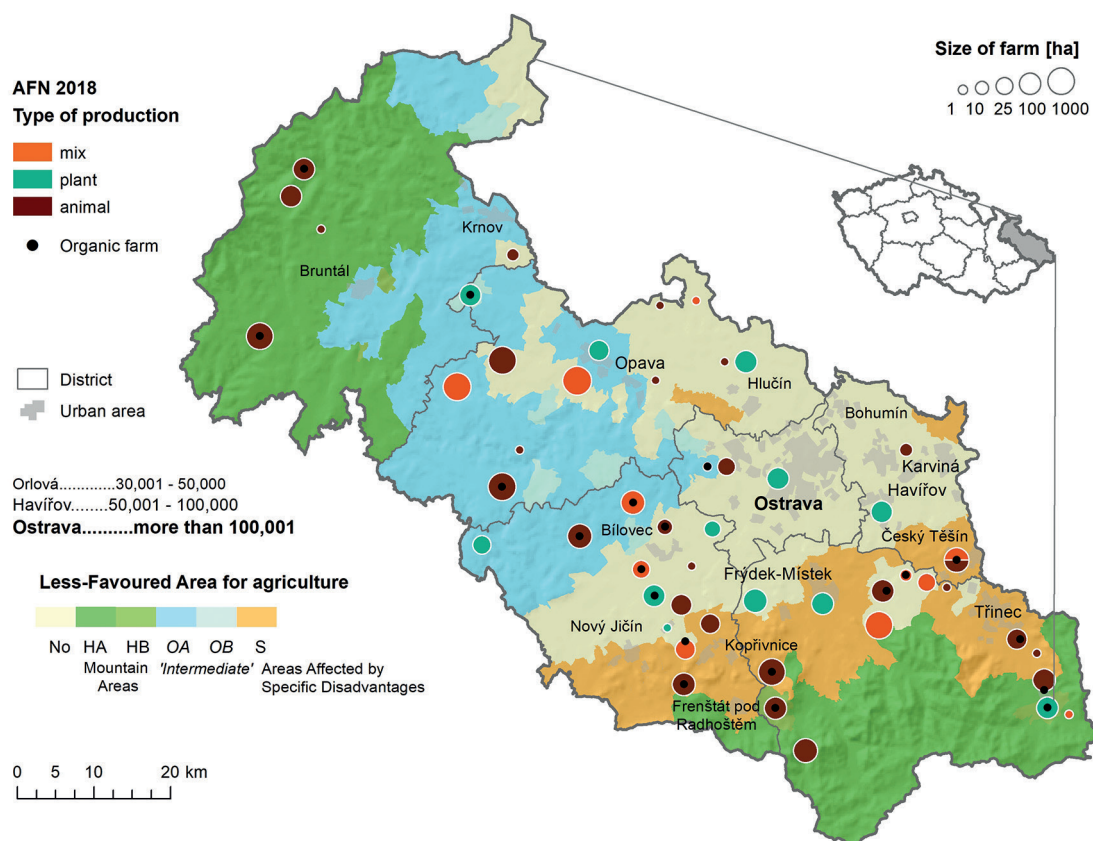


Fig. 3: Spatial distribution of AFN farms in MSR and type of production in 2018. Source: Own compilation, ArcČR 500 Vector Geodatabase.

for their own cheese production or abattoirs. Six farms combined both meat and dairy production. Only one farm offered final products such as smoked meat and sausages. Fruit processing (apple juice, fruit compote and jam) was employed on five farms and finally sauerkraut production (typical regional product in MSR) on three farms. The growing number of farms with animal production and processing capacities and, on the other hand, the higher vulnerability of AFN farms producing fruit, vegetable or eggs, might be explained by the production of fresh food (especially fruit and vegetable) or its inaccessibility because of food self-provisioning in MSR including the exchange of food products between friends and relatives (JEHLIČKA and DANĚK 2017). This assumption was partly mentioned by SPILKOVÁ and PERLÍN (2013), however, it requires further examinations and research of the co-existence of AFNs and food self-provisioning.

Although there are many possible distribution channels, two thirds of farms use only one form and one fifth of farms combine two forms of en-

agement in AFNs. On site farm sales represented by farm shops dominate among the practices of AFN farms (Tab. 4). The number of farms directly selling their products has doubled over the reporting period (Fig. 4). Their expansion might have been facilitated by the reduction of bureaucracy in Czechia in relation to on site farm sales and slaughter since 2017. This corresponds MORRIS and BULLER's (2003, 560) that in Gloucestershire, UK, farmers prefer to sell their products in their own farm shops (than via farmers' markets and specialist or local shops) in order to achieve greater sale prices and higher added value. The expansion of on farm sales also indicates that AFN farms were able to find funding to build this distribution channel after two decades of the undercapitalization of the Czech farming sector which was the most serious developmental barrier during the whole transformation phase of Czech agriculture (BIČÍK and JANČÁK 2001; VĚŽNÍK and BARTOŠOVÁ 2004). Other forms of on-farm distribution are much less common, but especially farm-based hospitality evidenced a high quantitative growth.

Tab. 4: Development of AFN farms and their participation in different forms of AFNs in 2014 and 2018 in MSR

AFN farms	2014 Non-continuing farms	2014 Continuing farms	2014 Total	2018 New farms	2018 Total	Index of change 2018/2014 [%]
All type of farms	14	24	38	31	55	145
- organic farms	1	13	14	7	21	150
On farm	5	22	27	31	53	196
Farm shops	5	22	27	31	53	196
sales	0	2	2	5	7	350
Farm based hospitality	0	2	2	5	7	350
Pick-your-own	0	3	3	1	4	133
Farm direct deliveries - veg boxes	3	8	11	1	9	82
Community supported agriculture	0	1	1	1	2	200

Paradoxically, all farms offering accommodation were not located in the most scenically attractive mountain areas of Jeseníky and Beskydy Mts. but rather in their foothills or lowland localities.

During the boom of AFNs in Czechia, box schemes were a very frequent way of participation in AFNs. However, engagement in box schemes is a distribution and coordination challenge for farms. This might be the reason why the number of farms offering veg boxes slightly decreased during the period 2014-2018. Community-supported agriculture is still under-represented in MSR.

Our data might indicate that off farm sales stabilized. However, as stated in the methodology section, due to the very dispersed character of this AFN form, we have not examined the number of small regional shops offering 'local' food. Based on our experience, the number of shops distributing products of AFN farms has been growing rapidly. On the other hand, the number of retailers under the nationwide franchising schemes was very low and concentrated only in the Ostrava agglomeration (Fig. 1). In the AFNs' boom phase during the period 2010 - 2013, a stable spatial structure of farmers' markets had developed in MSR, but their number and dynamics were not as high as in the capital city of Prague (in 2011 there were 41 farmers' markets in the Czech capital with a similar size of population as MSR, FENDRYCHOVÁ and JEHLIČKA 2018). In MSR, 13 of the 17 markets regularly held in 2018 were launched already before 2014 (Fig. 1). In 2018, farmers' markets were regularly held in most of the towns with population size of ten thousand and more. At the same time, only one farmers' market is organized regularly in the regional capital Ostrava in front of the local shopping centre.

## 6 Conclusion

Despite the limitations of our research (low number of AFNs' constituents which impedes identification of clear spatial patterns or the methods of farm selection via 'voluntary' databases), we revealed the principal characteristics and tendencies of AFNs' constituents using the example of the old industrial and post-socialist MSR. Our research showed that AFNs, in comparison to conventional food networks, have an extremely sparse cover in the space of MSR (with higher intensity in the proximity to main urban centres) despite their significant growth during the last decade. Regarding the production side of AFNs, in 2018 less than 1.4% of farms operating in MSR were integrated in AFNs and even if we focus on organic farms, they comprise only 5.2% of the total number of farms in MSR. From this point of view, the contribution of organic farms (very often presented as flagships of multifunctional agriculture) to the economic and social pillar of sustainable rural development is disputable. Moreover, their application as an indicator of the existence of specific local food systems seems to be unacceptable.

With such a low proportion, MSR significantly lags behind the EU level, where about 15% of European farms declared their integration in AFNs (EU 2012) or selected English regions even if the comparison is made with older data on the number of farm producers (see Tab. 5). There are many reasons for such a low proportion. Apart from the reasons also typical of Western countries such as the mode of regulation discriminating against small farm producers in favour of large and globally or nationally integrated agricultural enterprises profiting from economies of scale; the consumption behaviour of consumers usually preferring cheaper, conventional food etc., we identify reasons specific to the post-socialist and post-industrial regions.

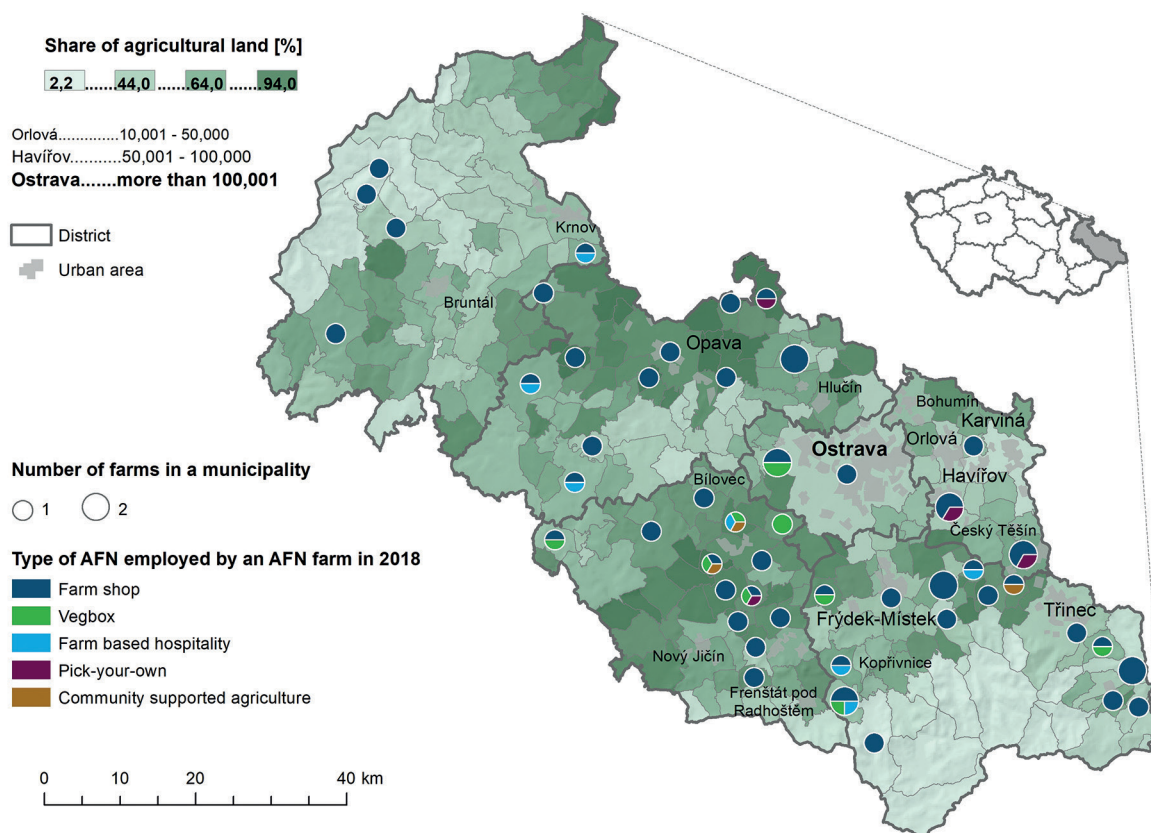


Fig. 4: Spatial distribution of AFN farms in MSR and forms of AFN they employed in 2018 (own compilation, ArcČR 500 Vector Geodatabase)

As concerns the former, in the research of AFNs in post-socialist countries, their relation to various forms of food self-provisioning must be considered. Our paper showed that there was a significant growth of AFN farms processing mostly meat and, on the other hand, AFN farms producing simple unprocessed products (such as fruit, vegetable and eggs – typical products of home gardening and allotment gardens) which were highly vulnerable, considering the competition of at least 19 thousand allotment gardens in MSR. Further research focusing on the interaction and co-existence of food self-provisioning and AFNs should reveal to which extent any regional AFNs are influenced by food self-provisioning. Such research would be even more interesting when we consider the hard striving for the revival of small scale and family farms after the break-up of the socialist regime in 1989 and following the transformation of the agri-food sector which in Czechia obviously favoured large farms, the successors of socialist state farms and cooperatives.

Now we are coming to the second reason stemming from the post-socialist history of Czechia, the over-dimensional concentration and specialization of farm production inherited from the socialist period. Due to the dominance of large farms in the regional farm structure, managers of large farms applying economies of scale were usually not forced, in order to keep their position on the market, to focus on special niche and high-quality food (Bičík and Jančák, 2001). On the other hand, in line with our results, this argument is not valid universally. Our research showed that even large farms expanded in the AFNs and combine both conventional and alternative ways of food production and distribution. Further research might reveal what is the motivation of large farms' managers for their integration in AFNs despite the relatively stable income from high volume production.

Focusing on the reality of the post-industrial region, the lower purchasing power caused by the higher unemployment rate and, on average, lower salaries simultaneously with a different 'mindset' of the regional population influenced by a generally lower level of

**Tab. 5: Representation of selected AFN forms in different countries/regions (number of selected AFN forms might also be given by different natural conditions, etc.)**

Country/region	AFN constituent	number	per 100,000 capita	Year	Source
MSR	CSA	2	0.2	2018	authors
Iowa (US)	CSA	50	1.7	2000	HINRICHS 2004
Provence-Alpes-Côte d'Azur (FR)	CSA	210	4.3	2012	GUIRAUD et al. 2013
the U.S.	CSA	3,637	1.2	2009	GALT 2011
MSR	farm producers	55	4.5	2018	authors
South West (UK)	farm producers	782	15.3	2006	ILBERY et al. 2006
West Midlands (UK)	farm producers	329	6.1	2006	ILBERY et al. 2006
MSR	farmers' markets	17	1.4	2019	authors
Iowa (US)	farmers' markets	120	4.1	1995	HINRICHS 2003
Provence-Alpes-Côte d'Azur (FR)	farmers' markets	30	0.6	2012	GUIRAUD et al. 2012
MSR	on-farm sales	53	4.4	2018	authors
Provence-Alpes-Côte d'Azur (FR)	on-farm sales	400	8.1	2012	GUIRAUD et al. 2014

educational attainment negatively influenced the progress of the 'quality turn' (GOODMAN 2003) and the spreading of AFNs throughout MSR (similar results also were registered for the old industrial regions of Scotland, Wales and England (RICKETTS HEIN and WATTS 2010)). This is probably the reason why in the regional capital Ostrava there was only one farmers-market in 2018 or only three franchises of national chains with local food in the Ostrava agglomeration whereas in the similarly populated Brno city there are ten such shops. This demonstrates the weak position of post-industrial Ostrava in comparison to other Czech cities.

During the examined period, AFN farms employed new value adding activities and focused more intensively on on farm sale in their own farm shops and food processing. A few of them also diversified their activities focusing on accommodation services. We can also observe a changing leadership in AFNs development. While during the initial period of AFNs' development consumers initiated the rise of farmers' markets, etc. (SPILKOVÁ et al. 2013), currently, farmers actively are developing new forms of AFNs and react to the growing demand. This process might also reflect their desire to increase their independence from conventional ways of food distribution (MORRIS and BULLER 2003).

To sum up, the newly configured AFNs in MSR are still weakly developed and seem to be very fragile despite the relatively dynamic growth in the num-

ber of AFN farms during the last decade. It would be useful to compare our results with other old industrial regions or by contrast, with economically booming metropolitan regions. Another interesting research question is how local and regional policies and actors might influence the evolution of AFNs in their own region. This would mean to assess the capacities of local and regional actors in contrast to the structuring powers from the European (or even global) level which significantly influence the forms and extent of local food systems.

#### Acknowledgements:

Vladan Hruška would like to thank the European Union, European Social Fund and the Ministry of Education, Youth and Sports of the Czech Republic for the financial support of this paper (Project Smart City - Smart Region - Smart Community - CZ.02.1.01/0.0/0.0/17\_048/000743).

Ondřej Konečný would like to thank to the Internal Grant Agency of the Faculty of Regional Development and International Studies (FRRMS IGA 2017/020).

Zdeňka Smutná would like to thank to the Internal Grant Agency of the Jan Evangelista Purkyně University in Ústí nad Labem (Project UJEP-SGS-45208-15-2002-01: The concept of regional value added partnership in the agri-food

production and rural tourism sectors: proposal for implementation in rural development).

Barbora Duží would like to thank the INTER-COST project: Geographical aspects of Citizen Science: Mapping trends, scientific potential and societal impacts in the Czech Republic (No. LTC18067), and Czech Academy of Sciences for supporting this paper through the MSM 100861801 project New Challenges for food security and cultural landscape protection.

## References

- ABRAHAMS, C. N. (2006): Globally useful conceptions of alternative food networks in the developing south: the case of Johannesburg's urban food supply system. <https://www.era.lib.ed.ac.uk/handle/1842/1465> (Date: 21.6.2018)
- BARBERA, F. and DAGNES, J. (2016): Building alternatives from the bottom-up: the case of alternative food networks. In: *Agriculture and Agricultural Science Procedia* 8, 324–331. <https://doi.org/10.1016/j.aaspro.2016.02.027>
- BENEDEK, Z. and BALÁZS, B. (2016): Current status and future prospect of local food production in Hungary: a spatial analysis. In: *European Planning Studies* 24, 607–624. <https://doi.org/10.1080/09654313.2015.1096325>
- BERNER, S.; DERLER, H.; REHORSKA, R.; PABST, S. and SEEBACHER, U. (2019): Roadmapping to enhance local food supply: case study of a city-region in Austria. In: *Sustainability*, 11(14), 1–16. <https://doi.org/10.3390/su11143876>
- BIČÍK, I. and JANČÁK, V. (2001): Czech agriculture after 1990. In: *Geografie* 106, 209–221.
- BLUMBERG, R. (2018): Alternative food networks and farmer livelihoods: a spatializing livelihoods perspective. In: *Geoforum* 88, 161–173. <https://doi.org/10.1016/j.geoforum.2017.10.007>
- BLUMBERG, R.; LEITNER, H. and CADIEUX, K. (2020): For food space: theorizing alternative food networks beyond alterity. Department of Nutrition and Food Studies Scholarship and Creative Works. 15. <https://digitalcommons.montclair.edu/nutr-foodstudies-facpubs/15>
- COMMITTEE OF THE REGIONS (2011). Opinion of the Committee of the Regions on 'Local food systems' (outlook opinion). In: *Official journal of the European Union* 2011/C 104/01.
- CSO (Český statistický úřad) (2019): Statistical Yearbook of the Moravian-Silesian Region – 2018.
- CUALG (2013): Věstník Českého zahrádkářského svazu 2/2013. [https://www.zahradkari.cz/vestniky/vestnik\\_2013\\_2.pdf](https://www.zahradkari.cz/vestniky/vestnik_2013_2.pdf) (Date: 25.5.2020)
- DANSERO, E. and PUTTILLI, M. (2014). Multiple territorialities of alternative food networks: six cases from Piedmont, Italy. In: *Local Environment* 19 (6), 626–643.
- DUŽÍ, B.; OSMAN, R.; LEHEJČEK, J.; NOVÁKOVÁ, E.; TARABA, P. and TROJAN, J. (2019): Exploring citizen science in post-socialist space: uncovering its hidden character in the Czech Republic. In: *Moravian Geographical Reports*, 27 (4): 241–253. <https://doi.org/10.2478/mgr-2019-0019>
- EU (2012): Speech/12/283 Dacian Cioloș's speech. Conference Local agriculture and short food supply chains, April 20, 2012 in Brussels. [https://europa.eu/rapid/press-release\\_SPEECH-12-283\\_en.htm](https://europa.eu/rapid/press-release_SPEECH-12-283_en.htm) (Date: 2.8.2018)
- FENDRYCHOVÁ, L. and JEHLÍČKA, P. (2018): Revealing the hidden geography of alternative food networks: the travelling concept of farmers' markets. In: *Geoforum* 95, 1–10. <https://doi.org/10.1016/j.geoforum.2018.06.012>
- FILLIPPINI, E.; MARRACCINI, E.; HOUDART, M.; BONARI, E. and LARDON, S. (2016): Food production for the city: hybridization of farmers' strategies between alternative and conventional food chain. In: *Agroecology and Sustainable Food Systems* 40, 1058–1084. <https://doi.org/10.1080/21683565.2016.1223258>
- GALT, R. (2011): Counting and mapping community supported agriculture (CSA) in the United States and California: Contributions from critical cartography/GIS. In: *ACME: An International Journal for Critical Geographies* 10, 131–162. <https://142.207.145.31/index.php/acme/article/view/892>
- GOODMAN, D. (2003): The quality 'turn' and alternative food practices: reflections and agenda. In: *Journal of Rural Studies* 19, 1–7. [https://doi.org/10.1016/S0743-0167\(02\)00043-8](https://doi.org/10.1016/S0743-0167(02)00043-8)
- (2004): Rural Europe redux? Reflections on alternative agro-food networks and paradigm change. In: *Sociologia ruralis* 44, 3–16. <https://doi.org/10.1111/j.1467-9523.2004.00258.x>
- GOODMAN, D. and GOODMAN, M. (2009): Alternative food networks. In: KITCHIN, R., THRIFT, N. (eds.). *International Encyclopedia of Human Geography*. Amsterdam, 208–220.
- GOSZCZYŃSKI, W. and WRÓBLEWSKI, M. (2020). Beyond rural idyll? Social imaginaries, motivations and relations in Polish alternative food networks. In: *Journal of Rural Studies* 76, 254–263. <https://doi.org/10.1016/j.jrurstud.2020.04.031>
- GRANVIK, M.; LINDBERG, G.; STIGZELIUS, K.; FAHLBECK, E. and SURRY, Y. (2012): Prospects of multifunctional agriculture as a facilitator of sustainable rural development: Swedish experience of Pillar 2 of the Common Agricultural Policy (CAP). In: *Norsk Geografisk Tidsskrift–Norwegian Journal of Geography* 66, 155–166. <https://doi.org/10.1080/00291951.2012.681684>
- GUIRAUD, N.; LAPERRIÈRE, V. and ROUCHIER, J. (2014): A geography of short supply chains in Provence-Alpes-Côte d'Azur. In: *L'Espace géographique* 43, 356–373. <https://doi.org/10.3917/eg.434.0356>

- HAKLAY, M. (2013): Citizen science and volunteered geographic information: overview and typology of participation. In: SUI, D.; ELWOOD, S. and GOODCHILD, M. (eds): *Crowdsourcing geographic knowledge: volunteered geographic information (VGI) in theory and practice*. Dordrecht, 105–122.
- HINRICH, C. (2003): The practice and politics of food system localization. In: *Journal of Rural Studies* 19, 33–45. [https://doi.org/10.1016/S0743-0167\(02\)00040-2](https://doi.org/10.1016/S0743-0167(02)00040-2)
- HOLMES, J. (2006): Impulses towards a multifunctional transition in rural Australia: gaps in the research agenda. In: *Journal of Rural Studies* 22, 142–160. <https://doi.org/10.1016/j.jrurstud.2005.08.006>
- (2012): Cape York Peninsula, Australia: a frontier region undergoing a multifunctional transition with indigenous engagement. In: *Journal of Rural Studies* 28, 252–265. <https://doi.org/10.1016/j.jrurstud.2012.01.004>
- HRABÁK, J. and KONEČNÝ, O. (2018): Multifunctional agriculture as an integral part of rural development: spatial concentration and distribution in Czechia. In: *Norsk Geografisk Tidsskrift-Norwegian Journal of Geography* 72, 257–272. <https://doi.org/10.1080/00291951.2018.1532967>
- HRABÁK, J. and ZAGATA, L. (2020): Rozvoj a regionální diferenciace ekologického zemědělství v Česku. In: *Geografie* 125 (1), 69–92.
- HRABALOVÁ, A. and ZANDER, K. (2006): Organic beef farming in the Czech Republic: structure, development and economic performance. In: *Agricultural Economics - Czech* 52 (2), 89–100.
- ILBERY, B. and MAYE, D. (2005): Alternative (shorter) food supply chains and specialist livestock products in the Scottish–English borders. In: *Environment and planning A*, 37(5), 823–844. <https://doi.org/10.1068/a2Fa3717>
- ILBERY, B.; WATTS, D.; SIMPSON, S.; GILG, A. and LITTLE, J. (2006): Mapping local foods: evidence from two English regions. In: *British Food Journal* 108, 213–225. <https://doi.org/10.1108/00070700610651034>
- JANČÁK, V.; ĚRETOVÁ, V. and HRABÁK, J. (2019): The development of agriculture in Czechia after the collapse of the Eastern Bloc in European context. In: BAŇSKI, J. (ed.): *Three decades of transformation in the East-Central European Countryside*. Cham, 55–71.
- JAROSZ, L. (2008): The city in the country: growing alternative food networks in metropolitan areas. In: *Journal of Rural Studies* 24, 231–244. <https://doi.org/10.1016/j.jrurstud.2007.10.002>
- JEHLÍČKA, P. and DANĚK, P. (2017): Rendering the actually existing sharing economy visible: home-grown food and the pleasure of sharing. In: *Sociologia ruralis* 57, 274–296. <https://doi.org/10.1111/soru.12160>
- JONGENEEL, R.; POLMAN, N. and SLANGEN, L. (2008): Why are Dutch farmers going multifunctional? In: *Land Use Policy* 25, 81–94. <https://doi.org/10.1016/j.landusepol.2007.03.001>
- KIZOS, T.; MARIN-GUIRAO, J. I.; GEORGIADI, M.-E.; DIMOULA, S.; KARATSOLIS, E.; MPARTZAS, A.; MPELALI, A. and PAPAIOANNOU, S. (2011): Survival strategies of farm households and multifunctional farms in Greece. In: *The Geographical Journal* 177, 335–346. <https://doi.org/10.1111/j.1475-4959.2011.00403.x>
- KNEAFSEY, M.; VENN, L.; SCHMUTZ, U.; BALÁZS, B.; TRENCHARD, L.; EYDEN-WOOD, T.; BOS, E.; SUTTON, G. and BLACKETT, M. (2013): Short food supply chains and local food systems in the EU. A state of play of their socio-economic characteristics. JRC scientific and policy reports. <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/short-food-supply-chains-and-local-food-systems-eu-state-play-their-socio-economic> (Date: 14.2.2019)
- KONEČNÝ, O. (2017): Spatial polarization of agriculture of Czechia during the integration into the European Union. In: *Geografie* 122, 257–280. <https://doi.org/10.37040/geografie2017122030257>
- MARSDEN, T. and SONNINO, R. (2008): Rural development and the regional state: denying multifunctional agriculture in the UK. In: *Journal of Rural Studies* 24, 422–431. <https://doi.org/10.1016/j.jrurstud.2008.04.001>
- MAYE, D. and KIRWAN, J. (2010): Alternative food networks. In: *Sociology of Agriculture and Food* 20, 383–389. <https://doi.org/10.1177/205684601051>
- MAYE, D.; KNEAFSEY, M. and HOLLOWAY, L. (2007): *Introducing alternative food geographies*. Amsterdam.
- MINISTRY OF AGRICULTURE OF THE CZECH REPUBLIC (2019a): Seznam ekologických subjektů. <https://eagri.cz/public/app/eagriapp/EKO/Prehled/Prehled.px?typ=ZEM&c lear=A&stamp=1566902365572> (Date: 3.2.2019)
- (2019b): Organic farming in the Czech Republic / Yearbook (2018): [http://eagri.cz/public/web/file/643739/Rocenka\\_ekologickeho\\_zemedelstvi\\_2018\\_WEB.pdf](http://eagri.cz/public/web/file/643739/Rocenka_ekologickeho_zemedelstvi_2018_WEB.pdf) (Date: 15.5.2020)
- MORRIS, C. and BULLER, H. (2003): The local food sector: a preliminary assessment of its form and impact in Gloucestershire. In: *British Food Journal* 105, 559–566. <https://doi.org/10.1108/00070700310497318>
- NAVRÁTIL, J.; MARTINÁT, S.; KREJČÍ, T.; PÍCHA, K.; KLUSÁČEK, P.; ŠKRABAL, J. and OSMAN, R. (2019): The fate of socialist agricultural premises: to agricultural ‘brownfields’ and back again? In: *Moravian Geographical Reports* 27 (4), 207–216. <https://doi.org/10.2478/mgr-2019-0016>
- PÖLLING, B. and MERGENTHALER, M. (2017): The location matters: determinants for “deepening” and “broadening” diversification strategies in Ruhr Metropolis’ urban farming. In: *Sustainability* 9, 1–19. <https://doi.org/10.3390/su9071168>
- RENTING, H.; MARSDEN, T. and BANKS, J. (2003): Understanding alternative food networks: exploring the role of short food supply chains in rural development. In: *Environment and planning A* 35, 393–411. <https://doi.org/10.1068/a3510>

- RENTING, H.; ROSSING, W.; GROOT, J.; VAN DER PLOEG, J.; LAURENT, C.; PERRAUD, D. and VAN ITTERSUM, M. (2009): Exploring multifunctional agriculture. A review of conceptual approaches and prospects for an integrative transitional framework. In: *Journal of Environmental Management* 90, 112–123. <https://doi.org/10.1016/j.jenvman.2008.11.014>
- RICKETTS HEIN, J. and WATTS, D. (2010): Local food activity in the Republic of Ireland and Great Britain. In: *Irish Geography* 43, 135–147. <https://doi.org/10.1080/00750778.2010.514733>
- RICKETTS HEIN, J.; ILBERY, B. and KNEAFSEY, M. (2006): Distribution of local food activity in England and Wales: an index of food relocation. In: *Regional Studies* 40, 289–301. <https://doi.org/10.1080/00343400600631533>
- RUMPEL, P., SLACH, O. and KOUTSKÝ, J. (2010): Creative industries in spatial perspective in the old industrial Moravian-Silesian region. In: *E a M: Ekonomie a Management* 13, 31–46. <http://hdl.handle.net/11025/17364>
- SMITH, J. and JEHLÍČKA, P. (2013): Quiet sustainability: fertile lessons from Europe's productive gardeners. In: *Journal of Rural Studies* 32, 148–157. <https://doi.org/10.1016/j.jrurstud.2013.05.002>
- SOVOVÁ, L. and KRYLOVÁ, L. (2019): The countryside in the city? Rural-urban dynamics in allotment gardens in Brno, Czech Republic. In: *Moravian Geographical Reports* 27 (2), 108–121. <https://doi.org/10.2478/mgr-2019-0009>
- SPILKOVÁ, J. and PERLÍN, R. (2013): Farmers' markets in Czechia: risks and possibilities. In: *Journal of Rural Studies* 32, 220–229. <https://doi.org/10.1016/j.jrurstud.2013.07.001>
- SPILKOVÁ, J. and VÁGNER, J. (2018): Food gardens as important elements of urban agriculture: spatio-developmental trends and future prospects for urban gardening in Czechia. In: *Norwegian Journal of Geography* 72, 1–12. <https://doi.org/10.1080/00291951.2017.1404489>
- SPILKOVÁ, J.; FIALOVÁ D.; STRNADEL, Š.; SYROVÁTKOVÁ, M.; ŠIFTA, M. and VÁGNER, J. (2016): *Alternativní potravinové sítě: česká cesta*. Praha.
- SPILKOVÁ, J.; FENDRYCHOVÁ, L. and SYROVÁTKOVÁ, M. (2013): Farmers' markets in Prague: a new challenge within the urban shopping landscape. In: *Agriculture and Human Values* 30, 179–191. <https://doi.org/10.1007/s10460-012-9395-5>
- SYROVÁTKOVÁ, M.; HRABÁK, J. and SPILKOVÁ, J. (2015): Farmers' markets' locavore challenge: the potential of local food production for newly emerged farmers' markets in Czechia. In: *Renewable Agriculture and Food Systems* 30, 305–317. <https://doi.org/10.1017/S1742170514000064>
- TÓTH, A.; DUŽÍ, B.; VÁVRA, J.; SUPUKA, J.; BIHUŇOVÁ, M.; HALAJOVÁ, D.; MARTINÁT, S. and NOVÁKOVÁ, E. (2018): Changing patterns of allotment gardening in the Czech Republic and Slovakia. In: *Nature and Culture* 13, 162–188. <https://doi.org/10.3167/nc.2018.130108>
- VÁVRA, J.; DANĚK, P. and JEHLÍČKA, P. (2018): What is the contribution of food self-provisioning towards environmental sustainability? A case study of active gardeners. In: *Journal of Cleaner Production* 185, 1015–1023. <https://doi.org/10.1016/j.jclepro.2018.02.261>
- VÁVRA, J.; MEGYESI, B.; DUŽÍ, B.; CRAIG, T.; KLUFOVÁ, R.; LAPKA, M. and CUDLÍNOVÁ, E. (2018): Food self-provisioning in Europe: an exploration of sociodemographic factors in five regions. In: *Rural Sociology* 83, 431–461. <https://doi.org/10.1111/ruso.12180>
- VĚŽNÍK, A. and BARTOŠOVÁ, L. (2004): Selected regional geographical differences of the Czech Republic agriculture, after the transformation processes. In: *Agricultural Economics – Czech* 50, 207–216.
- WATTS, D.; LEAT, P. and REVOREDO-GIHA, C. (2011): Local food activity in Scotland: empirical evidence and research agenda. In: *Regional Studies* 45, 1187–1205. <https://doi.org/10.1080/00343400903380416>
- WILSON, G. (2008): From “weak” to “strong” multifunctionality: conceptualising farm-level multifunctional transitional pathways. In: *Journal of Rural Studies* 24, 367–383. <https://doi.org/10.1016/j.jrurstud.2007.12.010>
- WILSON, G. (2009): The spatiality of multifunctional agriculture: a human geography perspective. In: *Geoforum* 40, 269–280. <https://doi.org/10.1016/j.geoforum.2008.12.007>
- WOODS, M. (2011): *Rural*. London.



**Authors:**

Dr. Vladan Hruška  
Faculty of Science  
Jan Evangelista Purkyně University in Ústí nad  
Labem  
Department of Geography  
České mládeže 8  
40096  
Czechia  
vladan.hruska@ujep.cz  
<https://orcid.org/0000-0003-3839-7376>

Dr. Ondřej Konečný  
Faculty of Regional Development and International  
Studies  
Mendel University in Brno  
Czechia  
<https://orcid.org/0000-0003-3098-7726>

Zdeňka Smutná  
Faculty of Social and Economic Studies  
Jan Evangelista Purkyně University in Ústí nad  
Labem, Czechia  
<https://orcid.org/0000-0002-7581-4696>

Dr. Barbora Duží  
Institute of Geonics of the Czech Academy of Sci-  
ences  
Department of Environmental Geography  
Czechia  
<https://orcid.org/0000-0003-4250-0196>