

Exploring the diverse connections between small farms and food consumption: case studies from Poland, Romania and Latvia

Marta Czekaj^a, Ewa Tyran^b, Sandra Šūmane^c, Barbu Raluca Ioana^d

^a University of Agriculture in Krakow, Institute of Economics and Enterprises Management, martaczekaj@poczta.onet.pl

^b University of Agriculture in Krakow, Institute of Economics and Enterprises Management, ewa.tyran@ur.krakow.pl

^c Baltic Studies Centre, sandra.sumane@gmail.com

^d Highclere Consulting Romania, ralubai@gmail.com

Abstract: *More than 90% of the world's farms are less than 5 hectares, what implicates a huge area of UAA involved in small scale farming. In Europe, almost half of all the farms are very small (up to 2 ha), and a majority of these farms is located in Eastern Europe (EE). The dominance of small units in EE agriculture is closely linked with tradition, socio-political and economic conditions and dynamics of the region. However the recognition of the contribution of small farms to food and nutrition sustainability is very difficult and often is skipped and downplayed by researchers, politicians and even by farms owners. There is also a lack of information about the level of small farms' self-provision and other consumers of food their produce. This comparative paper is based on small farm surveys conducted within SALSA project in selected regions of Poland, Romania and Latvia. These countries to some extent share a common political and historical experience, but have different directions of agricultural development. We aim to explore and compare small farms situation in local/regional/national agriculture. We reveal the diversity of types of small farms and the diversity of forms they are linked to their consumers. We pay particular attention to the level of small farms self-provision. Analysis of the data from these EE regions where we observe a predominance of small farms can be a starting point for a wider discussion on small farms role and relevance for food security.*

Keywords: *small farms, self-provision, market, Poland, Romania, Latvia*

Introduction

Small farms are very difficult to compare in any kind of dimension, as each country, or even region poses own characteristics, history, tradition which have influenced shape of small scale farming. It is undisputed that small agricultural holdings are present in food economy in all countries of the world, however not all countries measure or estimate how strong influence small farming has on their food and nutrition security (FNS). What seems to be quite obvious according to several authors, small farms owners are very important for food security in developing countries. They delivered up to 70% of food supply in Africa and even 80% of foodstuff consumed in sub-Saharan Africa and Asia together (Smallholders...). On the other hand, in selected regions in Africa, more than 50% of farmers can not meet family needs for food, and have to buy it (Niragira et al., 2013). In most ceases small farms provide a wide range of products, and this is essential for their activity. The centre of their attention is no production specialization (however we can indicate successful small farms focused on one specific product) (Niragira et al., 2013) or profit maximization. They want to firstly satisfy household food needs, and after that they can focus on market demand (Jingzhong et al., 2016).

There is a huge number of small farms in EE agriculture, but their contribution to FNS is poorly explored and is not correlated with adequate recognition of small agricultural holdings' problems in EE countries. One of the basic issues is small farm definition which can not be formulated in one common way and usually this term depends on local, regional or national

interpretation. Small farms are generally perceived as units with low production efficiency, low labour efficiency and with low share in national economy. On the other hand the high number of them indicates that they are important in regions with agricultural fragmentation. Such regions we can find in Poland, Romania and Latvia. What is more, Authors observations of the specific regions in these three countries show that small farms in EE obtain different levels of productivity and diversity of outputs. They also present varying degrees of participation in food production. What we can observe from statistics is the decreasing number of small farms. Yet we do not know what consequences that process of disappearing of small farms has on our FNS, especially in the future. Problems of small agricultural units and their role in European and African countries have been undertaken in SALSA Project: Small farms, small food businesses and sustainable food security. This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 677363.

Methodology

The main aim of the article is to explore and compare small farms' participation in regional food system in EE. SALSA adopts a food systems perspective in order to explore all four dimensions of FNS and their connections between them. Food systems are commonly conceptualised as the organisation of production, processing, distribution and consumption of food (Ericksen 2008, Ingram 2011). For this purpose, authors examine and evaluate level of self-provision and external consumption in small farms in selected countries in EE.

To overcome major constraints of analysis – scale and complexity of small farms' integration into regional food system in EE countries, Authors decided to reduce the area of research to three regions. Primary data collection was undertaken in (NUTS 3 level): Rzeszowski region (Poland), Giurgiu region (Romania) and Pieriga region (Latvia). The selected regions represent meaningful gradient of socioeconomic situation of small farm across EE. These are regions with very high land fragmentation and small average farm size. Data in the selected regions were collected through interviews with key informants, food producers and processors (small farms, and small food businesses owners) and focus groups (representing wide scope of stakeholders: agricultural administration, producers' cooperatives, regional administrators and policy makers, processors, farm inputs suppliers, and wholesalers/exporters). In total, 110 interviews with small farmers were collected: in Rzeszowski we obtained data from 43 farmers, in Giurgiu region from 37 farmers and in Pieriga region from 30 farmers. Other data were obtained by documents review and analysis and from existing statistics from each country. Data collection was carried out in 2017 and was done within the SALSA Project¹. Following joint SALSA methodology, and for the purpose of this paper, we base the small farm typology in the regions upon two criteria: (1) the level of their market integration calculated as a proportion of sold production and (2) the degree of farm self-sufficiency measured as the share of the farms' own food production in a households' food consumption. We use the threshold of 50% of sold and self-consumed production. The paper presents preliminary findings from the researched regions.

Small Farms in Poland, Romania and Latvia – key issues

Eastern Europe countries are similar in many dimensions. They share history, experience and other features. Looking for their common denominator in terms of agricultural development, small-scale farming is occurring at the forefront. Poland, Romania and Latvia are countries in which small farms are very important in rural economy because of their significant share in all agricultural holdings (table 1) – 54% in Poland, 90% in Romania, and 41% in Latvia (Eurostat 2017).

¹ 'Small farms, small food businesses and sustainable food security', EU Horizon 2020 Programme, Grant Agreement No 677363, April 2016-March 2020.

Table 1. Farms in Poland, Romania and Latvia

Specification	Poland	Romania	Latvia
Number of farms (thousands)	1 505	3,629.66	69,9 ²
Average farm area (ha)	10,7	3	27,6 ³
Share of small farms in all agricultural holdings (%)	54	90	41

Sources: own elaboration based on data from National Statistics Offices, Central Statistical Bureau (2017)

Rural areas are place for living for 15 278 thousands of Poles that is 40% of Polish population. Significant part of those people are involved in agricultural production both directly (as farmer or members of farmer family) and indirectly (for instance as consumers, neighbours or just rural society). In 2010 there were 1 505 thousand farms in Poland, 54% of them with less than 5 ha. In 2015 this share dropped to 52% and number of those farms was decreased by 81 thousands (Rocznik..., 2017). It can be observed that the structural transformation of agriculture is continued, but speed of changes is faster among big farms, than in small units. Rural economies are under strong influence of the Common Agriculture Policy, and often farms' production in Poland depends on direct payments as a source of very meaningful part of farms income. Small farms in Poland are indicated as those, which do contribute enough to food and nutrition security when taken into consideration resources they possess. For many reasons (high costs of input, low gate prices, the EU requirements, ageing, lack of successors) small farms have been decreasing the level of plant and animal production, and as a result their income from agricultural production has been also decreasing (Dzun 2013).

Increasing power of big farms is fostered by vertical integration in food chains. Such advanced form of cooperation usually skips small farms as those with too low level of production to be in the centre of their interest. On the other hand, small farms products are often identified with high quality production, regional tradition which can not be obtain in big processing units. In Poland we can find examples of good practices among small farms, when "small" farmers not only actively participate in innovatory value food chains but also create them, for instance an initiative "box from farmer", where through common website groups of "small" farmers are able to sell their products directly to urban dwellers (Czekaj 2013).

Post-socialism agricultural reform, decollectivisation and land restitution in the beginning of 1990s in Latvia resulted in a very fragmented agricultural production structure. 600 collected farms were abolished or reorganised, and 74.000 peasant farms and 126.000 private subsidiary farms were registered in mid-1990s (Latvian State Statistics Committee 1997). Since then a stable concentration trend has been augmenting the farm size: in 2016, there were 69.900 economically active farms with average farm size 43.3 ha and UAA – 27.6 ha (Central Statistical Bureau 2017). Still, accordingly to various estimations 80 to 90% of Latvian farms are considered as small (European Commission 2011; European Parliament 2013). Despite the high number of the small farms, their role and potential in sustainable rural development and food security remain vastly disregarded and underused.

Small farms have been loaded with crucial social functions in rural communities and families during the transition period when other employment and income possibilities were limited in countryside, but rural development policies for long have failed to create social and economic alternatives or improve the situation of small farmers (Slee 2000). Since public support for agriculture has been introduced in Latvia a couple of decades ago, its biggest share has been attributed towards modernisation goals, which has been absorbed by a limited number of large farms or companies (Veveris and Kālis 2011). The EU accession with the

² With UAA larger than 1 ha or standard output more by EUR 70 regardless of the area.

³ UAA on average per holding.

harmonisation of national and EU policies has promoted sustainable development of Latvian agricultural and rural policies. Environmental and social dimensions of agricultural development have been better addressed in policy documents, and respective regulations and support measures have been introduced. The national rural development program 2014-2020 proposed support specifically to small-scale farmers. However, technological modernisation and productivity have remained the central goals of agricultural policy, justified by the comparatively poor technical equipment, low competitiveness of farms, unequal support level to farmers across the EU member-states and increasing competition in global market.

Small farmers face also difficulties in the market. On-going concentration of food chains, resulting in disappearance of smaller processors and retailers and increasing domination of big agro-businesses have limited margins for small farmers' market operations. The specific requirements of big market actors towards their suppliers regarding quality, volume, supplies etc. together with public regulations of food production and distribution (in particular, safety and hygiene standards) have been restraining small farmers' market access. Moreover, often big retailers outlive farmers' market initiatives among consumers by setting cheaper prices for end-product. Consumers' purchase and consumption habits have gone hand in hand with this concentration trend, and supermarkets by far have become the most popular shopping places. In the meantime, there is growing food awareness among consumers. Increasing attention is paid towards nutritional value, origin, healthiness and other aspects of food products. This changing attitude and consumption habits is opening space for new market opportunities for small farmers. A range of direct marketing initiatives have been proliferating - on-farm sales or shops, self-picking at farms, direct delivery to consumers, box schemes, farmer markets, e-commerce etc.

Although the total number of agricultural holdings in Romania has decreased by almost half a million in the last decade, from 4.48 million registered by the 2002 census to 3.6 million (2013), is still one of the highest in the EU countries.

The small farms have a social buffer role, which made it possible for Romania to go through the difficult period of deindustrialisation. It resulted in premature unemployment or for the rural people who worked on the former cooperative farms and whose pensions are not sufficient for a decent living, and significantly to the food security by the high share of self-consumption (65%). Many of these farms are mainly in the hilly and mountain areas, being the main players of local economy in these areas, capable to provide traditional food.

A significant part of these small farms are merely subsistence holdings: about 3.3 million holdings work areas less than 5 ha (out of which 2,59 million under 2 ha) accounted for over 90% of total number of holdings, representing almost 30% of the utilized agricultural area at national level. The small holdings are obviously non-legal entities, many of them being also dependent on the agricultural services performed by the owners of agricultural equipment .

In 2003, when the restitution of private land ownership rights was almost complete, there were about 4.5 million agricultural holdings with an average size of 3.1 ha of agricultural area per farm. By 2013 there were 3.6 million agricultural holdings with an average size of 3.6 ha (Tudor, M.M. 2014).

Therefore, most small farmers have not benefited from financial support through the CAP, while over 90 per cent of the Romanian beneficiaries received less than EUR 500 per year due to their small agricultural land area (Alexandri and Luca, 2012), most of the support targeting the production part and less market integration of small farmers.

Thus, integration of these holdings to the market has continued to represent a challenge due to non-conformity with food and hygiene standards, lack of investments and modernisations.

Despite of their lower productivity, these farms provide a stable production, due to production diversification. While the very large-sized farms from Romania are generally specialized in the production of small grains and oil crops, the very small farms feature a strong diversification: they mainly cultivate maize (as a grain crop), used in people's food and in feeding animals, and also a multitude of crops that are used as food for people, such as:

beans, potatoes, pumpkins, vegetables, fruit. At the same time, most small farms also raise animals: 1-2 dairy cows, poultry, several sheep or goats. Thus, in the countryside, people's food mainly comes from the production on the small peasant household farms. These products are no longer marketed, they are used for self-consumption.

Notably, in the last years, small farmers have got more involved with a range of actions (box schemes, farm shops, online sales of traditional products, direct contracts with the supermarkets etc), aiming at a better integration to the market.

Small Farms in reference regions in Poland, Romania and Latvia

Agricultural production in small farms has some common features, such as small scale of production, use of manual work and less intensive technologies, but also can be very different if we consider particular conditions. The research regions had been chosen as areas representing the highest share of small farms in those countries (table 2).

Table 2. Main characteristic of the analyzed reference regions

Specification	Rzeszowski region (Poland)	Giurgiu region (Romania)	Pieriga region (Latvia)	
Land size (km ²)	3552	3 526	10135	
Population (thousands people)	631,56	274, 59	366	
Density (people/km ²)	178	81,4	36	
GDP (thousand EUR/inhabitant)	9155 EUR	4 900 EUR	9564 EUR	
Total labor force in AWU	53413	82 000	12400	
Total number of holdings	72459	83 820	9037	
Total Agricultural Area AA (ha)	230078	275 611	266600	
Total Utilized Agricultural Area (ha)	185151	243 284	253300	
% of UAA in AA in the RR	80,5	88,27	95	
Average Farm size	2,56	3,29	29,5	
Number of farms by UAA farm size (ha)	0-5	66 953	78 080	3368
	5-20	5 204	5 340	3694
	>20	302	250	1910
Average size of farms < 5ha of UAA	1,43	1,4	1,85	

Source: own elaboration based on data from National Statistics Offices.

In Poland, reszowski region was selected. Reszowski region consists of 6 counties: the town Rzeszów, rzeszowski, łańcucki, kolbuszowski, strzyżowski, ropczycko-sędziszowski. It covers an area of 3 552 km². It has 631 thousands of inhabitants, 57% of them live in rural areas. The region is characterized by a relatively high population density index (178 inhabitants per km², with an average of 123 inhabitants/km² for Poland). This is due to the fact that in that area is the town Rzeszów, a medium-sized urban centre (National... 2010). The region is part of the Podkarpackie Voivodship (NUTS 2 level), one of the least developed voivodships in Poland, hence it has a lower level of socio-economic development than average in Poland.

The main feature of agriculture in the region is large agricultural land fragmentation. There are 72,4 thousands farms in the region (National 2010). The share of farms up to 5 hectares was 92% in 2010 (National... 2010). In all podkarpackie voivodship the share of farms up to 5 hectares was 90% in 2010 and decreased to 82% in 2016 (Cierpiat-Wolan et al., 2017). We can expect that the same process occurs in Rzeszowski region. Another problem is the spatial distribution of land plots. A single farm very often consists of a large number of separate land plots in different location, what hinders agricultural production.

The natural and soil conditions in the region are diverse, which results that in agricultural production run on both very good and weak soils. Agricultural production is mostly multidirectional with no specialization. The important crops in region are cereals (including wheat in particular) and potatoes. Pigs and poultry are important in animal production. Agrarian fragmentation, unfavourable area structure of farms with the existing overcapacity of the labour force engaged in agriculture, result in low economic strength of farms in the region. Small holdings sell usually very small amounts of their own products and the farms' output usually serves for self-supply of family, which has others than agriculture sources of income.

Rzeszowski region have a lot of abandoned lands, on which agricultural production is not maintain anymore. There is a lot of plots, where farmers pretend cultivation (moving the grass once a year without using it for hay), just to obtain direct payments, not to produce feed. It causes that official utilized agricultural area declared by farmers as area of food production is much higher than the real area under production.

Pierīga region is located in the central part of Latvia around the capital city Riga, along the coast of Riga bay in the Baltic Sea. One of the critical factors for regional and also agricultural development in Pierīga region is the presence of the capital city, which is by far the most dynamic economic, social and financial centre in the country. Farms located close to the capital profit from its presence and social and economic interactions. In turn, those farms in more remote places of the region are exposed to the general rural socio-economic context of lower income, higher unemployment, and depopulation.

The total agricultural area in the region reaches 266.6 thousand ha with utilised agricultural area – 95%. In the regional employment structure, agriculture has a comparatively small role – only 7% (12.4 thousands) of total labour force works in agriculture. The total number of farms is 9 037, while the number of small farms (<5ha) is 3 368 (37%). The average size of small farms is 1.85 ha UAA. The main agricultural branches in the region are cereals (32% of UAA) and dairy farming (23.2 thousands dairy cows). The main crops in terms of area are wheat (47.6 thousands ha), barley (12.2 thousands ha), and rape (11.41 thousands ha). The total amount of cereals produced in the region is 352 thousands tons per year: 67% –wheat, 14% – barley, and 8% – rye.

In the western part of the region the quality of agricultural land is one of the highest in Latvia. Therefore commercial production of cereals is well developed and plays a key role in the agricultural sector. The eastern part of the region is more suitable for dairy farming and pig-breeding. The total amount of cattle is 45.4 thousands livestock units (LSU) – most important ones are dairy cows (23.2 thousands LSU) and pigs (24.8 thousands LSU).

Giurgiu region is situated in the Southern part of the Romanian Plain, being one out of the seven counties of South Development Region. The landscape is flat, crossed by small rivers, fact that plays a very important role in the whole morphology of the region, bringing abundance in times of rainfalls and draughts in dry seasons. The Southern part is the valley of the Danube which forms the border with Bulgaria.

Giurgiu has a twofold economy, driven by two big areas of development: one close to the city of Giurgiu – The Free Trade Zone Giurgiu, and one in the North of the county due to its proximity with Bucharest (less than 30 minute distance).

The level of GDP (4900 EUR per inhabitant) is one of the lowest at national level, which is already at 53% compared with the EU one.

Agriculture is the main occupation in the county. Both intensive agriculture, and small scale – for Bucharest markets, are practiced. Over 93% of the farms are less than 5 ha. Arable land is representing 94% of the UAA, 59% of the cultivated surface being irrigated. Cereals represent about 75% of crops cultivated in the RR. Traditionally, small farmers are cultivating vineyards, which occupy 1,4% of the UAA which are used for producing wine for self-consumption. 1,8% of the UAA is occupied by vegetable crops, the open field production together with vegetables production in plastic tunnels or greenhouses, as well as kitchen gardens.

Giurgiu Reference region presents a significant potential for cereals production. Despite the high fragmentation of the land parcels, owned predominately by small farmers, land consolidation has happened in an informal basis between small farmers and associations of cereals cultivators. The cultivators are managing the land all together, paying the small farmers who own the land with wheat, sun-flower, oil or maize (between 1-3% of production/ha).

Livestock is mainly represented by pigs (24%) – traditionally bred for winter seasonal, poultry (41%), sheep (about 9%) and cattle (about 15%). Trends are showing a significant decline of the livestock due to the penetration of supermarkets at the village level and increase change in consumption patterns of the locals.

The population of Giurgiu reference region is recording a significant depopulation and elder age dominant, due to its proximity to Bucharest, where most of the young people are choosing increasingly to move for studying or working.

Small farms production and marketing

Food system complexity and lack of statistical data do not let to prepare full analysis of small farms self-provision and external consumptions, however following methodology used in SALSA project, authors focused on four key products selected in each region. These key products are either produced, consumed in large amount in region, or are important in region because of its tradition or history.

The presence of kitchen gardens within the farm structure represents a constant variable taken into account for the measurement of self-sufficiency component, which according to Eurostat data (2013) accounts for 0,7% of the total UAA in Latvia, 0,2% in Poland and 1,2% of the total UAA in Romania.

Table 3. Proposed small farm typology in analysed regions

Specification		Degree of self-sufficiency	
		< 50%	> 50%
Degree of market integration	< 50%	Type 1	Type 2
	> 50%	Type 3	Type 4

Source: own elaboration.

In the Polish region four products were chosen: cereals, potatoes, pork and poultry. In the Latvian region, small farmers situation was analysed in wheat, milk, vegetables and apple products. In Giurgiu region there were: wheat, sun-flower, tomatoes and eggs. As mentioned earlier base for the small farm typology in regions were two criteria: (1) the level of their market integration calculated as a proportion of sold production and (2) the degree of farm self-sufficiency measured as the share of the farms' produce in a households food consumption. That let to distinguish 4 different types of farms (table 3).

Table 4. Main characteristic of surveyed SF in selected regions in Poland, Romania and Latvia (farm divided according to types)

Specification	Rzeszowski region (Poland)	Giurgiu region (Romania)	Pieriga region (Latvia)
Type 1			
Share of farms in sample (%)	23	18	13
Average area of farm in UAA (ha)	3,4	2,7	8,4
Average age of farmer (years)	54	37	29
Degree of self-sufficiency (%)	31	28	29
Degree of market integration (%)	17	9,3	10,5
Type 2			
Share of farms in sample (%)	20	24	37

Average area of farm in UAA (ha)	2,9	2,3	6
Average age of farmer (years)	53	52	68
Degree of self-sufficiency (%)	72	49	58
Degree of market integration (%)	14	18	22
Type 3			
Share of farms in sample (%)	20	19	40
Average area of farm in UAA (ha)	4,2	1,7	12,7
Average age of farmer (years)	44	45	54
Degree of self-sufficiency (%)	21	32	32
Degree of market integration (%)	68	73	84
Type 4			
Share of farms in sample (%)	37	37	10
Average area of farm in UAA (ha)	5,0	4,9	9,3
Average age of farmer (years)	54	44	61
Degree of self-sufficiency (%)	74	18	72
Degree of market integration (%)	82	86	72

Source: own elaboration.

Type 1: In the Polish case 23% of analysed farms were classified as Type 1, 13% from Pieriga region and 18% in Giurgiu region (table 4). Agricultural production in these farms is mostly multidirectional, with no specialization. Low share of self-sufficiency and low degree of market integration correspond to hobby farms or to those living in the rural areas as either a living style or being the only available option (likewise Romania). In Latvia it means young farmers who are about scaling up and wish to expand and to farmers who have recently switched to another agricultural branch, but in Poland there are farms run by older generations – average farmer in this type was 54 – where there are no successors or lack of idea what would happen with a farm in the next years. Due to its close proximity to Bucharest, part of these type 1 farmers are commuting every day for going working in the city (age rank - 20-45 years old), but continue to be living in the countryside as “they wouldn’t imagine themselves living elsewhere” (being the case of older people who left once the village but returned once retired. Merging data from analysed regions, we can observe that all farms in Type 1 produce some crops, in particular vegetables and fruits and possibly smaller livestock for self-consumption. They are mostly not integrated with the market and the farm output usually serves for self-supply of the family (also to those family members, who do not live with a farmer). The poor market integration is explained by the fact that hobby farms are not market-oriented and their principal aim is to produce some food for self-consumption. Still these farms may occasionally sell some products to individual clients in neighbourhood (surplus), farmers market or using other direct sale’s channels. Examples of using the advanced direct sale channel - Internet, we observed only in Latvia. The family members have usually another than agriculture source of income (pensions, social assistance or salaries from out farm jobs), usually with only one family member working on the farm. What is important, the farm output is not sufficient to meet all food needs of the family (in Rzeszowski region only 30% of family needs are covered by own production, in Pieriga – 29 % average while in Giurgiu about 28% - represented mainly by the vegetables from kitchen gardens and the poultry or pork). Majority of food is bought on the market.

Type 2: The category of high degree of self-sufficiency and poor or no formal market integration was one of two most represented in the sample from Latvia (11 out of 30 interviewed Latvian farms belong here) but only 1/5 in the sample from Poland, and 24% of the interviewed farmers in Romania (9 out of 37 farmers). Also (like in Type 1) there we cannot indicate any form of specialization. These are typically mixed farms growing food or cash crops (vegetables, potatoes, fruit etc), feed crops (cereals, clover etc), and some

livestock (poultry, cows, meat cattle, pigs, rabbits, sheep etc) on the same farm. In Giurgiu region, Type 2 farmers are mainly the ones with farm size just over 2 ha, very focused on producing their own food, but not equipped enough for working the land (esp. cereals) on their own or have access to capital to become more specialised (investments in politunnels for vegetables). A particular situation of this Type 2 farmers (land owners) is that their land counts significantly, but indirectly to the overall cereal production of the regional, but equally in the economy of the household. More precisely, the bigger cereals growers associations are managing the land all together and paying about 1-3% of the total production to the land owners as revenue for a (most of the time) informally based land rental agreement. This arrangement contributes directly to providing the necessary feed for the livestock (chickens, pigs, cattle) on the farm. Nevertheless, in Giurgiu region, the income of a Type 2 farm is often supplemented by out farm income (out farm jobs, pensions). Often these farms were managed by older farmers – in Latvia region 8 out of 11 farmers in this category were older than 60, in Poland region 4 out of 9 farmers, and in Romania region (5 out of 9), as (statistically) the farms is recorded to be owned by the oldest member of the family – as successions/property transfer hasn't been done. In all the regions, there was also a minority of young farmers which are expanding and mature their farms, which have stable selling channels but little surplus. Their current production capacity is quite limited to maintain regular supplies to bigger market actors like retailers, cooperatives, catering businesses, but also by food standards constrains or poor capacity for producing more attractive products (no packaging, labelling, storage or transport capacity) . Alongside adaptation to climate change, advisory services are one of the biggest gaps identified by this type of farmers in becoming more specialised and market orientated in Romania. Only in Latvia region there was a couple of farms which are or recently have been selling regularly to big retailers or may sell to processors or middlemen (slaughtering houses, dry-houses). Otherwise, these farmers sell only small amounts of their production and do it only directly on farm or by farmers' markets. However, in all the three regions these farmers provide food to a considerable amount of consumers: it is used for self-consumption at farm household and given as gifts to relatives, friends, neighbours, on informal channels. The self-sufficiency is considerably high, reaching 65% in Pieriga. Many farms in this category were among those who offer the highest shares of their products for free. .

Type 3: Low self-sufficiency, but high market integration is characteristic to more specialised small farms. This was another category well represented in the Latvia sample (40%), but rather low (20%) in Polish sample or 19% in Romania's case. Comparing research region it was observed, that in Pieriga and Rzeszowski regions among these farms there were many with developed vegetable production, few specialised dairy farms with occasional or regular on-farm milk processing and a wheat farm. Most of Type 3 farms in Giurgiu region are represented by vegetable growers, especially tomatoes under politunnels, over 50% of the total productions being sold outside the region. Fruits (berries) have been traditionally maintained for being cultivated and sold outside the region as a habit introduced during the communist regime, the market channels targeting now, not the export, but big cities, creating or finding certain market niches. Still, in the absence of an regional (vegetable or fruit) aggregator that could contribute to collecting, storing, processing, the products leave the area as raw materials, the returned value to the household being in consequence impacted. 3 out of 7 farmers interviewed in Romania have given up breeding livestock and focus only on increasing the production, alongside improving sorting or packing. Agricultural production in these farms is a little bit more specialized in plant production. The difference between farms in Type 3 was the way in which farmers market their products. In Latvia region those farms do it via a range of diverse well-established individual market channels and often short food supply chains: selling on local markets, on farms and farm-shops, delivering directly to clients at their homes or work-places, or selling products via public procurement programs, to retailers, processors and catering businesses. In Polish region farmers are not integrated (100% market production they sell individually), they do not join in any quality / certification scheme. Most often they sell their products directly on farm or by farmers' markets, rather rarely to wholesalers, intermediaries or small processors. In Romania, there is a successful example, where vegetable growers set up a cooperative in direct collaboration with a big supermarket chain, collecting most of the vegetables and herbs produced at a commune

level. The supermarket supported the cooperative in setting up a central depot. They are equally the ones which consumption behaviour is increasingly bringing like their clients one – using the money they obtain from sells to buy high quality/highly processed food.

Type 4: In both Rzeszowski and Giurgiu regions, the majority of farms (37%) (14 farmers out of 37 interviewed in Giurgiu and 16 out of 43 interviewed in Rzeszowski region) were classified as type 4 (farms with high degree of self-sufficiency and high degree of market integration) while in two other regions respectively 10%. In Pieriga region these highly self-sufficient and highly market integrated farms are rather specialized ones (similar to the type 3) while in Rzeszowski region among Type 4 there is no specific plant production, but diversity of animal production is significant. In comparison, unlikely, in Giurgiu region Type 4 farms tend to be more specialised in what they produce for the market (vegetables), but very preoccupied by maintaining and improving their kitchen gardens (often with traditional varieties) or the livestock with traditional/local breeds. They are also practicing mainly the mixed farming and which seem to understand the so called “circular economy” principals at the household level. In Polish region only one farm do not have animals, among remaining almost all have pigs, chickens, cows, some of them have cattle for meat or ducks. In Latvia region there were few farms in Type 4, but two out of three had developed on-farm processing and the third was considering this. In Polish region 1/3 of small farms in Type 4 indicated simple processing (cleaning, sorting and packing products). Farms in Type 4 are much more integrated with the market than farms classified in other Types, but character of relations differ between regions. In Rzeszowski region the farm outputs are usually sold to wholesalers, intermediaries or small processors (most often animal production) and sold directly on farm or by farmers' markets (most often plant production). In Pieriga region market integration is ensured by similar market channels to those of the type 3 – solid individual and/or direct market channels (selling to regular individual clients on farm, farmers markets) and also conventional market actors (catering, retailer). In Giurgiu region, Type 4 farms are mainly the ones selling directly to intermediaries, gross markets or even supermarkets in Bucharest or cross the Carpathian mountains, two farmers being part of a “local producer” scheme provided by on big supermarket.

Conclusions

Although the study focused on key products in each region, it captured a quite complete range of products produced in small farms and their role in self-provisioning. Small farms often practice diversified production and therefore contributes to food diversity.

Regarding small farms' participation in food market, individual marketing channels prevail. For instance, most of the interviewed Latvian, Romania and Polish farmers who market their products, did this primarily on individual base and sold only directly to their individual clients. Very few small farmers had some contracts with processors or retailers. The individual market channels are very diverse, reflecting different small farmers' marketing capacities and structural opportunities: they involve on-farm sales, shops and pick-yourself, deliveries to customers at their homes or offices, selling at farmer markets or open air markets, also on the Internet. Next to these formal market exchanges, informal offering of food is widespread among small farmers. They provide food for free for quite a considerable amount of people.

Food self-sufficiency in small farms is greatly varying among different types of farms, farm households and production systems. Among the interviewed Latvian farms, self-sufficiency was ranging from 0 to 80% in the Polish case it was from 10 to 90%. All the farms are buying some food off farm, contemporary diets include many import products which even cannot be produced on place. The high percentage of self-sufficiency can have different explanations: some farms produce a great range of products which cover principal nutritional needs, special diets or food preferences, farming does not bring enough income to buy food etc. What is important, in Romania subsistence food production contributes to feeding the rural population but most smallholders are not able to generate enough income for overcoming poverty.

Therefore, public policies to support small farms should not only be targeted at small farmers

themselves, but also be reaching out to big business units, in order to work in partnership to unlock the potential of the smallholder sector. In order to improve smallholder market-linkages, the *approach of productive alliances* have a global proven track-record on how producer groups, the retail sector and the government can join forces to sustainable market opportunities. This concept builds on (i) a horizontal alliance among smallholders, (ii) a vertical alliance between buyers and the producers, and (iii) the public sector, which functions as the market enabler.

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