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Motivations of Subsistence Farming in Hungary: Analysis of a Multi-Factored Phenomenon☆

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Abstract Our paper aims to explore the role of subsistence farming in Hungary by reviewing the literature, analyzing the primary data from a representative survey conducted in 2018 in Hungary and presenting two case-studies. According to European and national-level policy analysis, subsistence farming is a cornerstone of European agriculture, as it is a central element of a positive rural image. The paper is based on earlier theories on subsistence farming, and argues that it is worth analyzing the different factors influencing subsistence farming in order to better understand the motivations of participating in this kind of activity. The paper analyses the role of five different factors on subsistence farming: economic, societal, policy, discursive, and sustainability factors, and argues that, although all five factors are important in order to understand the phenomenon, economic and policy factors are the most important in this type of activity, while sustainability is almost imperceptible.

Introduction

The form of producing food in fully or partly subsistence small units has changed over the decades and varies by region, but has resisted transformation by pre-capitalist, capitalist and socialist structures. Scientific articles (and policy papers as well) have tracked the long-term metamorphosis of subsistence farming and focused on factors in line with their scientific discipline and normative values, resulting in a multiplicity of approaches to identifying the essential characteristics of self-sufficiency farming, a phenomenon which is linked by the scientific literature to part-time or small scale farming, as we show in the following Early American rural sociological studies (Nelson 1980) focused intensively on part-time and small scale farming, and off-farm mobility. Since the 1950s, scholars have described the complex role of part-time farming, which has remained a constant subject for European rural sociology. For example,

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Cavazzani and Fuller (1982) regarded part-time farming as a viable future for a developed society. Buttel (1982) discussed its historic role in limiting the centralisation of capital and balancing rural social structures. Gasson (1986) described part-time farming as a survival strategy but also pointed out that the survival of farms does not necessarily mean the survival of existing farming families; and empirical studies show considerable turnover among occupants of surviving farms. Saraceno (1994) argued that the small-farm system is extremely positive in modern and more complex functions. Between the 1950s and 1990s, part-time farming was the dominant term that described small-scale food production in highly developed capitalism. The term "part-time farming" expressed a labor-oriented approach, using it to describe farms where the farmer had a regular occupation other than farming (Bell 2016). In the socialist countries, this involvement in spare-time agricultural activities was a common survival strategy (Kovách 1994; Symes 1992; Szelényi 1988). In Hungary, for example, 60 percent of households produced food for their own consumption and/or for the market in the early eighties (Kovách 1994; Szelényi 1988). Extensive provisioning was the way in which auxiliary-plot or small-scale farming was described (Kovách 1994; Szelényi 1988). It is important to note that most components of and motives for small-scale farming did not disappear along with the socialist regimes (Davidova, Fredriksson, and Bailey 2009; Kovách 1994; Mathijs and Noev 2004).

There are also competing theories concerning the role of subsistence farming in contemporary Central Eastern European countries. Research in the 1980s and 1990s argued that in socialist times, self-sufficient farming was not a special means of reducing poverty, but a widespread response of the population to the shortage economy[1] of the era (Alber and Kohler 2008; Rose and Tikhomirov 1993; Szelényi 1988). Authors now argue that the economic and social significance of subsistence farming has changed significantly, and when looking for positive and alternative perspectives in the values attributed to it, subsistence farming should be discussed

- as a local strategy of resistance against land grabbing and state/political intervention (Dorondel 2016; Gonda 2019; Mamonova 2017; Varga 2020; Visser et al. 2015)
- in connection to lifestyle; in the CEE context, it is an unintentional sustainability practice (Jehlička et al. 2020; Jehlička and Smith 2011; Sovová and Veen 2020)
- as an alternative to the industrial agri-food system which contributes to food sovereignty, sustainability and community regeneration (Balázs 2016; Balázs, Pataki, and Lazányi 2016; Dorondel and Şerban 2019; Mamonova and Sutherland 2015; Mincyte 2011).

[1]We use the expression 'shortage economy as it was introduced by Kornai (1980).

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In this paper, while accepting and making extensive use of the results of other contemporary studies, we nevertheless attempt to debate and extend the arguments of the existing literature. We argue that subsistence farming has several dimensions and it is influenced by different factors. We aim at better understanding the push and pull factors and the motivations underlying subsistence farming, and give less prominence to the values listed above (of resistance, lifestyle, and alternative food system).

Our analyses refer to Hungarian conditions, where the proportion of the rural population is high, similarly to other CEE countries (Swain 2013) and subsistence farming, which was strong in the socialist era, has a long tradition of compensating for food shortages, earning extra income, cultivating of hobby plots of urbanites and weekend-home gardens, and variations of contemporary rural and urban small-scale farming (Swain 2021).

We used different resources to describe the context of subsistence farming Hungary and showed that the number of both commercial and non-commercial farms is decreasing; this is quite similar across Central Europe. We found huge differences between the countries. The number and share of small farms are very diverse: for instance, both the number and the share of land used by small farms (below two hectares) is high in Romania; and these statistics seem to be stable, whereas the number, and also the land-use share of small farms, has decreased in Hungary and Poland since 2007; in these two countries around 2.5–3 percent of the land is used by small farms. In the Czech Republic and Slovakia, the role of small farms is very low: these use less than 0.5 percent of the total agricultural land. Despite the differences, we can see that small-scale farming is present in each country but, based on the literature, it is clear that the statistics do not include all the households involved in producing fruit and vegetables and raising animals partly or wholly for their own consumption (Jehlička, Kostelecký, and Smith 2013; Kovács 2016). The lack of reliable data makes it difficult to describe the context in which subsistence farms work. We found that, similar to the Czech Republic and Poland, around one-third of Hungarians are involved in food-production through subsistence farming (Jehlička et al. 2013; Kovács 2016), but the motivations of subsistence farmers are highly diverse. In our analysis we aimed at exploring the different factors of subsistence farming using qualitative and quantitative methods.

The paper is based on theoretical works, statistical data analysis of a representative survey, and two case studies conducted in two rural microregions in Hungary (Franklin, Kovách, and Csurgó 2016; Megyesi 2017). Our data enable us to analyze the motivations of individuals and the factors influencing them to engage in subsistence farming. We used a mixed method approach to reveal the role of these factors and to be able

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to describe the colorful context of the phenomena, and to benefit from the advantages of both qualitative and quantitative approaches (Conway et al. 2021; Johnson, Onwuegbuzie, and Turner 2007; Small 2011). We found that gardening and subsistence farming are important and widespread across society, although it is declining. We analyzed the social groups that are active in subsistence farming and identified five (not equally relevant) factors influencing this activity.

The paper is structured as follows. The first part of the paper reviews the numerous definitions used for subsistence farming and analyzes the differences between them. The next part of the paper, using available statistical data and the existing literature, presents the extent of subsistence farming in Hungary. Finally, the paper analyses the motivations of subsistence farming in Hungary based on a mixed method research, and conclusions are drawn.

Theoretical Background: Motivations for Subsistence Farming

In this section we first review the definitions of subsistence farming in Europe, before presenting our own understanding of the phenomenon, and analyzing how the definition influences the general view of the phenomenon. Indeed, it is difficult to find agreement on the definition of subsistence agricultural production. There is no single concept of this subject on which all or even most rural scientists agree.[2] Many definitions and terms have been developed, expounded upon and defended. In the European literature, subsistence and small-scale farming have been associated with diverse subjects such as pluriactivity (Kinsella et al. 2000), the revitalisation of agriculture (Ploeg and Renting 2000), sustainable rural development and multi-functionality (Dufour et al. 2007; Knickel et al. 2009; Wilson 2007) risk management and rural poverty (Davidova et al. 2012).

In defining the subject, the time-frame plays a significant role: while subsistence and small-scale agricultural activity resists capitalist and socialist structural transformations, the phenomenon and its interpretation are linked with current issues in scientific and public discourses. The shift from "part-time, small-scale farming" to "subsistence farming" mirrors a definitional turn from quantitative structural and labor approaches to the importance of normative autonomy, resistance, food and life quality (Ploeg 2008).

[2]The ongoing, non-consensual discourse on the definition of subsistence farming is not unique in rural sociology. Other basic concepts, such as the definition of "rural" or "peasant / farmer", are also the subject of ongoing conceptual disputes. About the latter, Granberg, Kovách, and Tovey (2001) summarizes the concepts of a long period (Marxist tradition, Kautsky, Chayanov, the second half of the 20th century and the millennium era), but other notable publications include Ploeg 2008, Jehlička et al.

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> The current definitions of subsistence farming are terminologically obscure. According to Dower (2009:1):A subsistence farm is one that produces food mainly to feed the farm family, with very limited surplus (if any) for sale or for barter. A semi-subsistence farm is one that produces enough surplus, beyond the family's own needs, to sell for regular income. In crude terms, governments tend to regard farms of less than 1 hectare as subsistence, 1 to 5 hectares as semi-subsistence.
>
> Dower further argues that such farms are:social, environmental and economic assets significant as homes and sources of livelihood for millions of people, as maintainers of valuable landscape and ecosystems, and as contributors to food supplies and to local and national economies. (Dower 2009:2)

According to EU law, these farms "*are defined as agricultural holdings which produce primarily for their own consumption and also market a portion of their output.*"[3]

Davidova, Fredriksson and Baily (Davidova et al. 2009) note that creating a definition is difficult due to a lack of relevant data. They cite the definition from Barnett, Blas, and Whiteside (1996) on subsistence farming: the farming activities form a livelihood strategy; the output is consumed directly; only a few purchased inputs enter the production process; and the proportion of output sold is low. They distinguish the production and consumption point of view in the analysis of semi-subsistence farming and argue for using a production approach in their study on new member states' small farming. The definition of subsistence farming is also difficult, because it is a continuously changing practice of the households: the extent, and the characteristics of the production may vary from year to year depending on economic challenges as inflation, energy crises, weather, or available time and necessities of the household members.

In the present paper we use Barnett et al.'s (1996) and the EU's (2005) definition, as we aimed at better understanding the factors influencing food production for self-consumption. Referring to EU law, we define subsistence farming as a household which produces primarily for the consumption of the producer family themselves and for in kind exchanges of agricultural raw materials and food. Then again, we emphasize that subsistence farming is a multi-dimensional phenomenon and it can be understood by analyzing the interdependence of various factors. The definitional obscurity and multi-dimensionality

[3]European Commission Regulation, 1698/2005, Article 34(1), cited in Fritzsch et al. (2010:16).

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often tempt modern social sciences to clarify the terms, though only a few studies do so (for example, Ploeg & Marsden, [Ploeg and Marsden 2009]). In the next section, we aim to present the factors influencing subsistence farming.

Picking our way through the terminological disorientation and reviewing the recent literature we identified the following factors that are the most important influencing components of subsistence farming: economic, policy, discursive, societal and sustainability factors. We interpreted the economic factors of subsistence farming as a structural dimension (Rose and Tikhomirov 1993; Smith 2002). The policy factor assumes that different policies focus intensively on small-scale and subsistence farming (Davidova et al. 2009; Mincyte 2011; Monika Mária (2015; Râmniceanu and Ackrill 2007). The discursive factor reveals the role of discourses around the analyzed phenomenon (Feagan 2007; Haan 1993). The societal factor is operationalized as the combination of the socio-demographic background, and of life-style elements. Sustainability factor is operationalized based on Brundtland's concept (World Commission on Environment and Development, 1987).

The *economic factor* is considered in the context of structural shifts that affect subsistence farming (Potori, Chmieliński, and Fieldsend 2014; Rose and Tikhomirov 1993; Smith 2002). Available evidence suggests that the role of subsistence farming cannot be understood separately from commodity farming, or without focusing on shifts in the entire agricultural sector. It has been argued that subsistence farming is not a means of dealing with poverty, but an answer to the shortage economy (Rose and Tikhomirov 1993), and the literature on Hungarian subsistence farming has argued similarly; recent data are contradictory, as we will show later (Csurgó, Kovách, and Megyesi 2018; Forgacs 2015).

Adrian Smith, analyzing data from Slovakia, argues that *economic factors* are influential but cannot be understood without the cultural and lifestyle elements of household farming, or home gardening (Smith 2002). The ethos of mobility and well-being and an economic behavior oriented to the market comprise the common values of the middle classes: well-being and the modest autonomy of the farm; security and commodity production; entrepreneurship and the principle of tradition; risk and basic standards of living; farming determined by a claim to efficiency. They control decisions on what and how to produce according to market demands, but at the same time their economic behavior is influenced by goals that are outside of the economy. Small-scale production is the chosen means of securing social status and well-being, while entrepreneurial ethos is associated with individualisation. The highest value is

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the autonomy and well-being of the farmer family; farming is only a tool, which can be changed by market demands.

Jehlicka and his co-authors also argue in several papers that food-related practices are not only survival strategies (economic necessity, the legacy of socialist food shortages, the traditions of the poorer segments of the population), but higher, middle class and urban families are motivated to produce healthy food for their own consumption and run hobby farms. Jehlička and Smith (Jehlička and Smith 2011) suggest that policy-making should be enhanced by a more culturally informed approach. There are also case studies showing the presence of a small group of townspeople producing vegetables for their own consumption and, as Benedek and Balázs argue, the economic factor is less important than the lifestyle component of subsistence farming in this case (Benedek and Balázs 2016) (Table 1).

The *societal factor* of farming includes the complex social background of farmers; family origin, education, professional careers, and other various components of social inequality, lifestyle and norms, all of which support economic survival. We analyze whether the societal sustainability of farming and home gardening is a key question: in the socialist era subsistence farming was based on family networks, social capital, trust-based social/economic networks and the background of the farming activity (Dupcsik 2018; Duží, Frantál, and Simon Rojo 2017; Tóth et al. 2018).

Subsistence and semi-subsistence farming used to be and still is part of the survival strategy of disadvantaged households, and this has been the most important societal character of local subsistence farming for a long time. The need for healthy, controlled, specific, traditional food or hobby gardening appeared among subsistence farming goals but, for example, pig-slaughtering, which used to be a family festival and a popular way of supplying fresh meat, bacon and sausage, is very rarely performed now (Zasada 2011). An earlier study found that farmers' habitus and ethos types survived the fall of the socialist regime (Kovách 1991). This result draws attention to the fact that studies on habitual factors of farming need to be restarted and introduced into scientific approaches to subsistence farming.

The (*social*) *policy factor* of subsistence farming has been acknowledged in recent years. The policy element is based on the assumption that various policies focus intensively on subsistence farming (Davidova et al. 2009; Mincyte 2011; Râmniceanu and Ackrill 2007). As described by Franklin et al. (2016) or Monika Mária (2015), from the mid-1990s, state-run social land programs have helped some 10,000 poor families to produce their own food in Hungary. Franklin

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et al describe a case in which the state-managed social land-use program remained inefficient and, in practical terms, was not introduced. Rising poverty and social problems prompted city councils to prepare an anti-poverty program to mitigate food shortages among indigent families. Despite the continued interest of social-policy literature in subsistence farming, agricultural policy studies focus only on small-scale and large-scale farming.

The *discursive factor* is linked to the policy factor, but it also refers to the different discursive practices bound to subsistence farming, such as local products and local foods (Csurgó and Megyesi 2015; Feagan 2007; Marsden 2013). This factor refers to the importance of images and public discourses on evaluation and political decisions regarding farming, as Henk de Haan pointed out (Haan 1993). The fashionable alternative-food networks, urban farming, sustainable food production and "political consumerism" (Seyfang 2006) are normative and discourse-oriented terms. In Europe, the political discourse on rural questions focuses on commodity farming and disregards rural complexity, as Cloke (1997) and Frouws (1998) have shown in the overall European context, Bilewicz (2020) about Polish agriculture, and Csurgó (2007) and Megyesi (2007) have described in the Hungarian context.

We have already noted the *sustainability factors* of subsistence farming, citing Jehlička and Smith (2011). Following Brundtland's concept (World Commission on Environment and Development, 1987) we operationalize the sustainability factor as a reflective practice in order to reach a social, environmental, and ecological equilibrium (Fonte 2013; Fonte and Cucco 2017). Feola et al. (2020), Barbier and Elzen (2012) have also noted that sustainable agriculture holds varying meanings, distinguishing between two visions of sustainability: the "green", "environmentalist" approach and "integral sustainability", which refers to the necessity of major changes and various dimensions of sustainability (ecological, economic, social, work conditions, acceptance). The concepts of factors of commodity and subsistence farming reflects the same integrated approach to farming, and highlights that economic, environmental and societal dimensions are coordinated assumptions of system innovation. Sustainability, as regards the concept of farming factors, presupposes a set of various (and intricately related) domains, in which innovation is inevitable if sustainable agriculture is to be achieved. The example of the tenacious survival (sustainability) of subsistence farming in the new EU member states clearly demonstrates that farming on smaller holdings has wider societal, economic and sustainability implications than agricultural relevance (Barnett et al. 1996).

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The Dynamics of Subsistence Farming in Hungary

In this section we present the recent development of subsistence farming in Hungary.[4] During the transition to a market economy, the number of farm units decreased rapidly, as Figure 1 shows. By 2005, the number of farm units was around 706,000 farms, less than half of the number in 1981. From the second half of the nineties a rapid concentration of land use and agricultural production took place in Hungarian agriculture, and since the turn of the millennium, the share of agricultural production from agricultural companies and larger family farms has increased continuously. A new agricultural structure has emerged,[5] in which the number of joint ventures and family farms has increased, and the number of farms of less than 1 hectare (the smallest category) is declining very rapidly; for example, between 2013 and 2016, by ninety thousand. The number of farms of under one hectare fell by three-quarters between the millennium and 2017.

Although land privatization in the mid-1990s was followed by the rapid concentration of land use, and agricultural production brought considerable changes (Kovách 1994:199; Kovács 2007; Swain 2013), the dual (commodity and subsistence) character of farming survived this radical shift in the structure of agriculture (Kovách 2012; Kovács 2016). From 2000 to 2010, the number of private farms fell by 40 percent according to the General Agricultural Census (2010); a total of 400,000 smaller family farms disappeared from the agricultural census between 2000 and 2010, but the proportion of subsistence and semi-subsistence farms was still 60 percent of the total number of farms even in 2010 (General Agricultural Census 2010). Our data show that the incidence of subsistence farming is systematically under-estimated,

[4]We briefly refer here to the changes in five selected Central-Eastern European countries to illustrate the context of the Hungarian situation. It is necessary to emphasize that it is challenging to find data on its extent in the different Central-Eastern European countries, and thus difficult to compare the relevance of subsistence farming in the five countries using Eurostat data: contrasting these results with our data and other sources, we found that the figures of the Statistical Offices cannot account either for all small-scale farming, or for all subsistence farming in Slovakia and the Czech Republic, and only partly presents them in Hungary, Poland and Romania. According to Alber and Kohler (2008) and also Vavra et al (2018), household (informal) food production has a large presence in the new EU member states. Jehlička and Smith (2011), using Czech and Polish data, pointed out that 38–50 percent of the population grows some of their own food. This means that there is a huge number of producers not appearing in the statistics. In the Romanian case, the extent of subsistence farming is estimated by various scientific papers to be around 3.7 million households (Alexandri et al., 2015), only one million more than Eurostat data suggest. We argue that based on these statistical data it is difficult to quantify subsistence farming in Central and Eastern Europe or even in Europe as a whole.

[5]While in 2000 there were 966,000 family farms, ten years later it was around 575,000 and in 2016 only 365,000 (Csurgó et al. 2018). In 2016, less than 5 percent of farms, 13,000 agricultural units, used three quarters of all agricultural land. Just 1,300 farms (0.3 percent of the total) cultivated 145,840 hectares, 31.2 percent of the total agricultural area (Kovács 2016). The Hungarian Central Statistical Office includes around 720,000 units of production that do not reach the statistical farm size, which mainly produce for self-sufficiency (and cultivated 22,471 hectares in 2016). In 2013, this figure was still 1.1 million.

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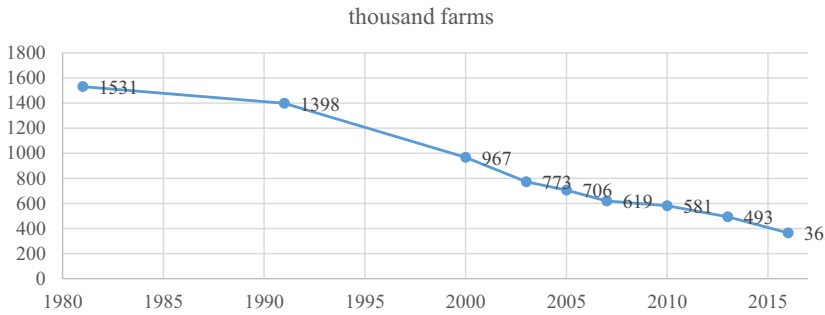

Figure 1. Changes in the Number of Farms in Hungary, 1981–2016. (Source: Central Statistical Office).

sometimes even neglected by official data and so their motivation and socio-demographic background remains unclear to both scientists and policy makers. This deficiency encouraged us to go beyond the data of the agricultural census, and to consider how to supplement it, in order to understand the role of subsistence farming in contemporary societies.

Despite the rapid and continuous decrease, evidence from the agro-census shows that small-scale and subsistence farming is still extensively practised in Hungary.[6] In examining three nationally representative surveys from 2005, 2015, and 2018, we found that subsistence farming decreased[7]: while in 2005 and 2015, 36.6 percent and 33.4 percent of respondents answered that they "*grow something for self-consumption*", in 2018 only 20.7 percent reported about such activity. Although there has been a slight decrease also between 2005 and 2015, and a major one between 2015 and 2018, we can still see that the prevalence of subsistence farming is much higher than we would have estimated using data from the agricultural survey.

Methods, Data, and Research Questions

Based on the theoretical background and the data presented above, we formulated the following research questions.

1. What is the dynamic of subsistence farming in Hungary?
2. What are the motives for subsistence farming in Hungary?
3. What are the factors influencing subsistence farming?
4. How are these motives interrelated?

[6]In 2010, 85 percent of private farms and agricultural companies used less than 5 hectares; 567,000 farms, and 1.1 million non-farming families, altogether 40 percent of Hungarian households, produced food.

[7]The three surveys were conducted by the same company; they used similar sampling methods. The date of the surveys: 2005 June, 2015 October, 2018 autumn. There were no relevant national, or political event during data collection. The logistic regression was conducted on the third survey (2018). For further details of the 2018 survey, see also the next footnote.

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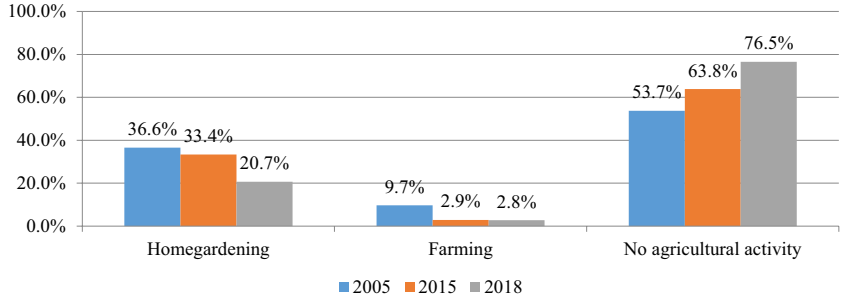

Figure 2. Prevalence of Subsistence Farming in 2005 and 2015 in Hungary. (Source: Representative survey OTKA 100682 (2015); Mobility Research Centre of the Centre for Social Sciences, 2018).

According to the literature review we identified five factors influencing subsistence farming. To answer these questions and analyze the role of the factors, we use a mixed method analysis: earlier literature and secondary data analysis, primary data from a representative face-to-face survey and two qualitative case-studies conducted in rural Hungarian small towns. The type of data, the data collection, and the data analysis were based on several methods, to capture the wide range of motivations influencing subsistence farming (Small 2011:59–60). The role of mixed methods can be beneficial to better understand complex phenomena, as recent methodological articles showed (Strijker, Bosworth, and Bouter 2020; Yeager and Steiger 2013), and as articles using mixed methods also show (Jack et al. 2020; Lacoste et al. 2018). The paper is based on a survey conducted in 2018 on a sample of 2,700 Hungarian adults (above 18 years old),[8] which is nationally representative in terms of gender, residence, and age. The case studies enable us to better understand the role of factors and connections among them; both were conducted as a part of a larger research project on Hungarian agriculture; semi-structured interviews, transect walking and document -analysis were

[8]The logistic regression is based on a survey conducted in the autumn of 2018 by the "ANON grant number". The database includes the data of 2,700 respondents over 18 years of age. When selecting the sample, a two-step, proportionally stratified probability sampling procedure was used. The primary sampling units consisted of settlements, while the final sampling units included groups of the population of appropriate age. The addresses within the settlements included in the sample were chosen randomly in accordance with the number of units preliminarily set for the sample, and the specific address card of the interviewers included not only the address concerned, but also the gender and age group of the person visited. The sample reflects the proportions of the total adult population in this field according to gender, age (3 age groups), education (4 levels of education), and type of settlement (4 levels of settlement). Following international practice, after the completion of the data collection, we applied multi-criteria weighting in order to fit the sample as accurately as possible. The resulting weight variable values ranged from 0.58 to 1.15, with 94 percent falling between 0.82 and 1.06. This small standard deviation of weights shows that even the raw database approximated the main characteristics of the initial population very well.

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used to prepare the case-studies. The first case-study was conducted in an Eastern Hungarian small town where large-scale agriculture with arable crops and animal husbandry is typical. Animal husbandry products (primarily dairy products) are widespread, while gardening, or orchards, are limited to home gardens. The second case-study was conducted in a Western Hungarian small town. Large-scale agriculture is also characterized by arable crops and animal husbandry, but here we can find smaller vineyards and orchards, and also the traditions of producing vegetables for sale. The main markets for these products were in the central small town and neighboring towns. Both case-studies are based on more than 25 semi-structured interviews with stakeholders (decision-makers, active subsistence farmers, experts, developers, prominent members of agricultural and civil associations, and of chambers), who are interested in various agricultural activities. In the case of farmers, the sampling was done with the help of local experts, who provided a list of small producers, and a snow-ball method was applied. In the farmer interviews, we asked them to present their everyday life, and the role of farming in their life. We also asked in detail about their farming activity; about the methods of farming, the knowledge they can build on and also whether they sell or give the surplus away. We collected information about their family relations, about their attachment to the settlement, to the landscape, to nature and to agriculture. The interviews were recorded and type-written. We used a semi-open coded method to understand their motivations, attitudes, and ideas about food production and agriculture, and we pre- and post-coded the responses to facilitate analysis of the interviews. The representative sample was analyzed using appropriate statistical methods and with the assistance of SPSS software.

Results of the Survey Analysis and the Case-Study Analysis

In the following, we analyze the role of the previously presented five influencing factors of subsistence farming. We present a logistic regression of survey data to analyze the role of economic and societal factors influencing the engagement of the different actors in agricultural activity, and then we analyze the two case-studies to better understand the role of social policy, discursive and sustainability factors, which were not analyzed in the logistic regression, and also to help understand the connections among the different factors.

Logistic Regression

To analyze the factors influencing subsistence farming we defined three categories based on the relation to farming: subsistence farmers, farmers and non-farmers. We used the following question: "*Do you produce*

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Table 1. Socio-Demographic Characteristics of the Subsistence Farmers, Farmers, and Non-Farmers

Variable	Category	Farmers	Subsistence Farmers	Non-Farmers	Total (Percent)
Education* (*N* = 2,687)	Elementary school	68.1	35.9	23.2	27.0
	Vocational school	14.5	22.8	22.3	22.7
	High-school degree	11.6	17.7	33.9	32.0
	BA/ MA	5.8	11.8	20.8	18.3
	Total (%)	**100.0**	**100.0**	**100.0**	**100.0**
	N	**75**	**552**	**2031**	
Sex (*N* = 2,687)	Female	58.1	54.6	52.0	52.7
	Male	41.9	45.4	48.0	47.3
	Total (%)	**100.0**	**100.0**	**100.0**	**100.0**
	N	**78**	**560**	**2049**	
Settlement type* (*N* = 2,687)	Capital (Budapest)	4.1	1.4	23.2	18.2
	County capital	4.1	11.5	20.0	17.8
	Rural small town	29.7	32.1	36.1	35.1
	Village	62.2	54.9	20.7	28.9
	Total (%)	**100.0**	**100.0**	**100.0**	**100.0**
	N	**78**	**560**	**2049**	
Activity* (*N* = 2,679)	Employed (or entrepreneur)	38.9	56.2	69.2	65.7
	Unemployed, temporary, public worker	6.9	2.2	3.7	3.5
	Retired	50.0	36.9	21.0	25.1
	Other	4.2	4.7	6.1	5.7
	Total (%)	**100.0**	**100.0**	**100.0**	**100.0**
	N	**76**	**558**	**2045**	
Average per capita household income (in EUR)* (*N* = 1873)		**373.7**	**406.7**	**468.2**	**452.0**
Average age* (*N* = 2,687)		**58.95**	**52.7**	**46.88**	**47.89**
Marital status* (*N* = 2,687)	**Marital status***	**100.0**	**100.0**	**100.0**	**100.0**
	Single	9.5	14.0	21.2	19.4
	Married	41.9	63.6	56.5	57.6
	Divorced/Widowed	48.6	22.4	22.3	23.1
	Total (%)	**100.0**	**100.0**	**100.0**	**100.0**
	N	**78**	**560**	**2049**	

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Table 1. Continued

Variable	Category	Farmers	Subsistence Farmers	Non-Farmers	Total (Percent)
How easily can you cover your living costs?* (*N* = 2,588)	It seems to be easy	24.7	38.9	45.1	43.2
	It seems to be hard	75.3	61.1	54.9	56.8
	Total (%)	**100.0**	**100.0**	**100.0**	**100.0**
	N	**77**	**547**	**1964**	
Total (%)		**2.8**	**20.7**	**76.5**	**100**
N		**78**	**560**	**2049**	**2,687**

Source: Representative survey Mobility Research Centre of the Centre for Social Sciences (2018).

*Significant difference: $p = 0.000$.

any vegetables, arable crops or fruits for self-consumption? Yes (1) or No (0)". We labeled subsistence farmers as everybody who answered yes, but excluded from the group everybody who sold any of their products. It is clear that the "farmer" category is mixed but, as the number of respondents is really low, we did not differentiate between small and large scale farms. In 2018, as Figure 2 shows, we found that over one-fifth (20.7 percent) of the Hungarian population produces food for their own consumption. Around 2.8 percent produce food to sell (the farmers) while 76.5 percent do not produce any kind of food. In the following we present the main socio-demographic characteristics of the three sub-groups.

According to the table above, there are significant differences between the three subgroups, of farmers, subsistence farmers, and non-farmers. Individuals participating in subsistence farming are older than the average and their income is lower. It is also worth noting that the average age and the average income of subsistence farmers lies between the average age and income of farmers and non-farmers. It is also more likely that they are less educated, already retired, and live in villages and rural towns; just as the stereotypes would suggest.

To explore the relationship between the different factors, we conducted logistic regression using the data of the same representative survey. We aimed at understanding the role of the different factors in growing food for self-consumption; the dependent variable was whether a household member produces anything. We built into the model the main socio-demographic variables: sex, age, marital status, type of residence, educational level, the per capita income of the household, the region where the respondent lives, the settlement type, and the employment status of the respondents. We used categorical variables such as educational level, regional background, settlement type and employment status (activity)

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as dummy variables and continuous variables, that is, per capita income of the household and age of the respondent and employed stepwise method.

We operationalized the economic factor by the per capita income of the household, and the employment status of the respondent. We used the educational level, the age, the marital status, the settlement type, and the region as a good proxy of the societal factor. The table below shows the results of the logistic regression analysis. We labeled the significant effects in each case as *, **, *** (Table 2).

The overall explanation of the logistic regression model is 20.77 percent. As the logistic regression table shows, neither the economic nor the societal factors have a uniform effect. We found that the global effect of both economic activity and per capita income of the household are significant for subsistence farming, but having a closer look at the economic factors we see that the effect is significant only in certain categories: among people in the middle quintile and among retired people. People in the third quintile of the household per capita income are 1.6 times more likely to be engaged in subsistence farming than people in the first quintile, implying that the connection between household per capita income and growing food for self-consumption is non-linear. Retired people are twice as likely to be engaged in this kind of activity as the employed, while in the other categories (among students, unemployed, public workers and temporary workers) the difference is not significant.

Some social factors are not significant: the level of education of the respondents does not affect the probability of subsistence farming; marital status has a global effect but not all categories are significantly different, while age, settlement type, and the region of residence affect the probability of the analyzed activity. These effects are not surprising: the scientific literature also suggested that subsistence farming is more common among elderly people, and among small town and village dwellers. The role of income seems to be worth noting: its global effect is significant, but analyzing the quintiles this significance remains valid only in the third one; which means that income does not have a linear effect, and that subsistence farming is more likely among people with a medium income. The regression analysis also shows that these effects are interrelated: both the elements of economic and societal factors have a significant effect on being engaged in subsistence farming.

The role of policy, discourses and sustainability on subsistence farming cannot be analyzed using the whole, representative data-set, as there are no variables operationalizing these dimensions. The role of these factors are discussed in relation to the sub-sample of subsistence farmers and in the case-study analysis.

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Table 2. Factors of Subsistence Farming (Variables in the Equation, Step1)

Variables[a]	Wald	Sig.	Exp(B)
Settlement type* **	**136.619**	**0**	
County capital***	15.09	0	6.446
Rural small town***	26.486	0	10.117
Village***	57.949	0	31.893
Regional	**15.857**	**0.015**	
Sex	**0.272**	**0.602**	**0.934**
Education (BA/MA)	**1.002**	**0.801**	
Elementary school	0.054	0.817	0.961
Vocational school	0.734	0.392	0.864
High-school degree	0.556	0.456	0.836
Activity (employed) **	**12.748**	**0.005**	
Unemployed, temporary work, public work	1.744	0.187	0.575
Retired**	8.858	0.003	2.038
Other	0.726	0.394	0.768
Marital status (Single)* **	**13.363**	**0.001**	
Married	0.179	0.673	1.085
Divorced/widowed*	5.06	0.024	0.578
Age (Cat. 18–39)* **	**14.979**	**0.001**	
40–59***	13.861	0	1.887
Over 60**	7.732	0.005	2.086
Feels difficult to earn living*	**4.979**	**0.026**	**0.718**
Household income (per capita) (under 260 euro)*	**11.596**	**0.021**	
1. Quintile (260–354 euro)	0.37	0.543	1.166
2. Quintile (355–421 euro)*	4.64	0.031	1.631
3. Quintile (422–585 euro)	0.039	0.843	0.956
4. Quintile (over 585 euro)	0.112	0.738	0.93
Constant	70.808	0	0.015

Source: Representative survey Mobility Research Centre of the Centre for Social Sciences (2018).

Note: Significance level: ***$p<.001$; **$p<.01$; *$p<.05$.

[a]Variable(s) entered on step 1: settlement type, region, sex, education, activity, marital status, age, expenses and income. We found no multicollinearity among the independent variables.

To understand the role of sustainability and certain societal factors influencing subsistence farming we asked the respondents to select from a list of possible motivations, and rank the selected statements. In the

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Table 3. Motivations for FSP

Reasons	Selected	Score
Obtain healthy food	430	914
Save money	372	706
Obtain fresh food	272	470
Continue family tradition	229	495
It's my hobby	110	423
Application of skills and knowledge (practicing gardening)	177	223
Obtain food that is not available on the market	84	171
By producing food using methods with a limited environmental impact I contribute to environmental protection	64	92
Fulfill family obligations (help my relatives)	50	82

Note: $N = 605$.
Source: Representative survey Mobility Research Centre of the Centre for Social Sciences (2018).

following we present an analysis of the motivations for being engaged in subsistence farming (the questions were adapted from Balázs [2016]).

Table 3 shows that the most frequently mentioned reason for producing food for self-consumption is to obtain healthy food; this is followed by saving money, and to obtain fresh food. The least frequent answers are environmental issues and fulfilling family obligations.

We went further and tried to reveal the hidden structure behind the above statements. We found that these items do not form a stable factor structure, but using principal component analysis we could differentiate two motivations for subsistence farming: individual, inner motivations and externally led motivational factors: following traditions and family obligations. The principal component measuring individual reasons, inner factors consists of the following items: obtain healthy food, save money, and obtain fresh food; all of the statements serve individual interests.[9] The second principal component seems to be less stable, measuring external motivations consisting of fulfilling family obligations (help to my relatives), and continuing family tradition.[10] According to our analysis, individual motivations are the most important for the practice of subsistence farming, community values and tradition are less important, while environmental concerns are mentioned in only 15 percent of cases; it is almost the least important for the respondents. At this

[9]KMO: 0.654, Communalities: Communalities: Obtain healthy food: 0.656; Save money: 0.66; Obtain fresh food: 0.534; Extraction Method: Principal Component Analysis.

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point we can assume that subsistence farming in Central-Eastern Europe is a silent sustainability practice as several papers argue (Balázs 2016; Jehlička et al. 2013, 2020; Jehlička and Smith 2011; Smith, Kostelecký, and Jehlička 2015). We also examined whether socio-demographic characteristics and the combination of motives are related in order to understand the role of sustainability in subsistence farming and found almost no statistically significant connections.

The results of the representative survey allowed us to reveal the connection among economic, societal, and sustainability factors and subsistence farming; in the following we deepen our analysis to refine our results and explore the role of policy and discursive factors in the phenomena, but at the same time the analysis allows us to draw a more subtle picture of the motivations and influencing factors behind subsistence farming.

Case Studies on Policy, Sustainability and Discursive Factors

After analyzing and presenting the results of the representative survey, in the following, we analyze two case-studies in order to explore the role of policy, sustainability and the discursive factors of subsistence farming and to gain a better understanding of the connections among the five factors.

As we wrote above, the case studies were conducted in rural micro-regions, characterized by large-scale agriculture. Kovács Katalin and her co-authors argued that, by the second decade of the 21st century, Hungarian agriculture had reached an equilibrium suggesting that land-use structure, market relations, and use of technology may show similar patterns over the next decade (Kovács 2016). Also in these two micro-regions land-use is concentrated, and mass commodity production is characterized by large-scale farms (Kovách 2012; Kovács 2016), while there are huge numbers of resourceless people stuck in rural areas (Czibere 2014; Váradi 2008; Virág 2016).

Despite this the relevance of subsistence farming at the individual farm level has decreased in the last decade, as we presented, and most households have stopped keeping poultry or producing fruit and vegetables for self-consumption. Parallel to this phenomenon a new initiative appeared:social farming in the form of community gardens (Franklin et al. 2016) in several rural settlements. There are such initiatives in both case-study areas, but these initiatives are not similar.

In the Hajdúnánás case, the local authority had two initiatives. It established a farm of 20 hectares, employing 87 public workers (Franklin et al. 2016) and produced vegetables, bred poultry and pigs, and sold the

[10]KMO: 0.5; Fulfill family obligations (help my relatives): 0.555; Continue family tradition: 0.555 Extraction Method: Principal Component Analysis.

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products mainly to local institutions (schools, social services), as part of the so-called Agricultural Pilot Programme in 2012; although this initiative also builds on local, agricultural traditions, it is a farm run by the local council. The second initiative is also organized by the local municipality. It offered smaller plots, input materials, machinery and expert knowledge to socially disadvantaged locals, so that they could produce their own food. The local municipality offered two hectares of community land for the anti-poverty program: 500 square metres per family. The program organized and paid for the main soil work (tilling, plowing, and harrowing) to a service provider and offered assistance in sowing, managerial services, and consulting as our interviewees reported. In 2011, 57 families joined the initiative, and a further 73 entered in 2012. The most successful families could grow 18–20 sacks of potatoes or a similar quantity of fresh vegetables, and 179 families also received poultry animals. Our participatory observations, transect walking, and the semi-structured interviews showed that most of the participants used conventional agricultural methods. As the organizers of the program explained in some cases they had to re-learn farming practices: "*We had an elderly colleague, who used to work for the local cooperative, who gave advice to our clients*" (interview with the organizer of the program). This colleague gained his agricultural knowledge in the seventies, and consequently offered conventional methods: pesticide and nutrient use. These initiatives were not only important as a part of social services and tools to provide food for the locals, but also to strengthen the agricultural image of the city. Both initiatives became part of the Brand of Nánás campaign which aimed at marketing and advertising local food products, mainly at the local farmers' market, in order to create a local brand which linked local agricultural heritage to local food products.

Land-use-based local *social policy* and the Brand of Nánás campaign changed the *local discourse on subsistence* farming according to the interviews: "*After a few years locals realised that the programme helped these people to produce a certain part of their own food, that they are also able to do it.*" In the beginning, local public opinion was negative toward the new social land-use program, as subsistence farming was declining and locals assumed that the participants had no adequate knowledge of farming and would be unable to work hard on the land. The success of the first years changed local opinions. Our interviews also showed that the farmers, after the success of the first year, when they found that subsistence farming could provide visible food and thus help them to survive, became proud of their achievement. It also helped to counteract negative prejudice, and make them somewhat more appreciated members of their

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local community. As interviewees reported, the derogatory evaluation inspired their persistence in working on subsistence mini-farms. The Brand of Nánás, as an evolving local brand, contributed to the positive image of subsistence farming by linking local food, local cultural heritage, and subsistence farming to each other. The Brand has played a key role in strengthening local identity and self-awareness, reinventing traditional peasant values, with local food production and hard-working at the forefront, helping the social reintegration of self-sufficient farmers whose activities met the expectations of the local public (Czibere and Kovách 2021). These results show that subsistence farming is influenced by discourses, economic, and social policy factors as well.

In the Zalaszentgrót case, a local civic association initiated a social land program in 1998 (Kiss 2016; Megyesi 2016), the aim of which was to provide plots, machinery, input material, and expert knowledge to all locals. Since 1998, the initiative has been present in all the villages of the micro-region, supported by local authorities, and has involved dozens of families. At its peak, in 2012, it involved more than 200 families, but even in an average year it reached out to around 80 families according to documents. These mini-farms used conventional methods to provide food for the families participating in the initiative, and to sell the surplus at local farmers' markets or for local institutions. Despite the long duration and relative success of the program, some of the initiatives changed their original goals, as the interviews and the transect walking during the long years of the research showed. Now, most of the social land programs have become mini-village farms, instead of being mini-subsistence farms. The production is organized by an employee of the local council. Local public workers are employed at the mini-farms, and the products are partly sold at the local farmers' market and partly donated to the locals in need. Also the motivation for participating in farming changed slightly: economic factors became stronger, while the societal (being in company and belonging to a community) factor became weaker, as the following interview excerpt shows: "*we work here five days a week and get a weekly salary, it is much easier and more secure than earlier when each of us had to work in our own garden*" (41 year old participant). The case is also an example of the volatility of subsistence farming: households stop practicing subsistence farming if the circumstances change and (re-)start under more favorable conditions. In this case the *social-policy factor* of the initiative is more visible: the subsistence farm is a tool to reach the social-policy goals of the local authority to support local poor people by providing land and knowledge, and if this is not enough by transforming the initiative. The discursive factor plays a minor role in the initiative, although the local authority uses it as a flagship project to show its social

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commitment, and the role of subsistence farming in local memories was also emphasized in the interviews.

The secondary analysis of both case studies shows the role of the *economic factor*. Self-provisioning through subsistence farming was a coping strategy for the poor according to some authors, but in these two case studies we found that subsistence farming is not a coping strategy of the poor people, but a social policy tool: in both cases, the programs targeted socially disadvantaged people, although not the most disadvantaged groups, by establishing mini-subsistence farms. They provided all necessary resources, tools, and capital for the local people to be able to start farming; without the assistance of the local agents, the municipality, and NGOs, the poor local people would not be able to produce food.

The case-studies also present the discursive factor of subsistence farming: in one case, the initiators tried to establish a trade-mark for local products based on the social farm, but also in the other the role of subsistence farming in local heritage is considered to be important by the locals. The initiatives are an important part of rural image-building, as seen in other studies (Csurgó, Hindley, and Smith 2019; Csurgó and Megyesi 2015). Local mayors and other decision-makers used social farming in their campaigns to show their social responsibility, their environmental consciousness and their attachment to national values; this shows the relevance of the discursive and the social policy factor.

Sustainability appeared in the analyzed case studies only as a health issue. None of the social farms use organic methods, nor do they reduce fertilizer or pesticide use, as the interviews and the transect walkings showed. (according to interviews subsistence farmers used conventional agricultural methods). Sustainability practices are not present according to our case studies, which means that the sustainability factor is the least represented. These results are consistent with earlier research on climate consciousness and perception of environmental problems (Fischer et al. 2011, 2012) showing that in the Hungarian context it is not perceived as an important issue.

The qualitative analysis helped us to achieve a more detailed view of the role of subsistence farming and to see that beside the economic factor, social policy and discursive factors are also important in subsistence farming: the presented initiatives became a part of local discourses and are active elements of local social policy, as Monika Mária (2015) also argued. According to the case studies, the discursive factor, as we interpreted it using the works of Haan (1993), Frouws (1998), and Cloke (1997), is present both in decision-making and in image-building.

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Discussion

We analyzed the role of subsistence farming and the different aspects of this practice. In the first part of the paper, we studied the different definitions of subsistence farming in the scientific literature. To understand the motivations of the phenomena, we differentiated five factors of subsistence farming based on earlier literature.

In our analysis we focused on the factors influencing subsistence farming in Hungary. Although our analysis also aimed at understanding the interaction between the different factors, our results are limited: we could not build a model consisting of all five factors, thus we decided to use a mixed method approach. We analyzed the economic, societal, and sustainability factors using quantitative data, while the discursive and policy factors were considered using qualitative data. Despite this limitation we could show how economic and societal factors interact, and how the discursive and social-policy factor connect with each other. Our paper has another clear, but inevitable limitation: although we had 2,700 responses, the sample size did not allow us to separate the different types of subsistence farmers described in the literature. We also could not explore the details how subsistence farmers sell, exchange or barter with some of their products in certain cases, and how this practice is changing in a household from year to year. Such quantitative analysis would require the use of more detailed panel surveys and larger samples.

The logistic regression model showed that both economic and societal factors have a significant effect on the probability of practicing subsistence farming; hence, the factors are interrelated. Rose and Tikhomirov (1993) argue that subsistence farming is a response to the shortage economy, while Alber and Kohler (2008) found that it can be understood as a response to poverty. Our analysis showed instead that it is influenced by economic factors, but closely linked to life-style and societal factors: neither the poor nor the rich are practicing subsistence farming; it is an activity of households with medium per capita income. The qualitative analysis enforced this latter finding: poor people could engage in agriculture activity through the assistance of local institutions(authorities or civic organizations).

Our study shows that Hungary is markedly different from the Czech Republic and Poland in terms of the role of sustainability in subsistence farming: analyzing the actual practices of subsistence farmers we found that environmental concerns do not motivate them, and they do not follow sustainable practices, such as organic farming or agri-ecology. At this point our analysis shows a different picture than Jehlička and Smith (2011).

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A further result of the case-study analysis is that the five factors of subsistence farming interact with each other and influence the involvement of the household in this kind of agricultural activity. In the case of subsistence farms, the economic, societal, social-policy and discursive factors are simultaneously present and influence the agricultural activity of the individuals. On the one hand our quantitative results show that individual motivations are more important, but on the other the two local initiatives show the relevance of external motivations like tradition.

Conclusions

The initial assumption of the article was that since subsistence farming is a multi-factor phenomenon which means that the influencing factors for this kind of activity cannot be tracked back to a few attributed factors (for example sustainability, food sovereignty or resistance), but returning somewhat to previous scientific approaches, it must be understood by analyzing various overlapping components.

Our analysis showed that household income, age and generation cohorts, family structure, settlement type, and region have a significant connection with subsistence farming. We argue that both the economic factor and societal factor have a significant effect on subsistence farming, and so this activity cannot be limited to one of the factors. The external pressures and internal motivators of older, mostly low-income subsistence farmers and younger, value-driven food producers are respectively regenerating,

The results of the case-study analysis reinforce these findings and also show the relevance of policy and discursive factors; however, in Hungary, the importance of the sustainability factor is low. Although our analysis also aimed at understanding the interaction between the different factors, our results are limited: we could not build a model consisting of all five factors.

The contribution of this study to the definition is to emphasize that it is necessary to expand the concept of subsistence farming both in science and in policy-making. Based on the previous literature and our results we also recommend considering all the factors that were previously less prominent in research and analysis. Economic and societal factors are the most frequently analyzed factors, while other components—social policy, discursive and environmental factors—usually appeared rarely as motivations of subsistence farming, even though some publications do deal with them. Another observation based on the international literature and the results of our paper is that the studied factors influence the practice of subsistence farming depending on time and the rapidly changing economic, social, political context, which can create many more variations of

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regional and local motivations of subsistence farming. Greater intellectual flexibility seems to be necessary to better understand the motivations influencing subsistence farming, which has declined in extent but become more and more diverse in the last couple of decades. The key recommendation for policy is that the regulation and support for subsistence farming should be dominated by the regional and even more so by local levels, as the diversity of motivations and practices around subsistence farming explored in our research can be respected and handled only by flexible and adaptive policy-making.

We also know that subsistence farming is a continuously changing phenomenon, thus future research will answer the question about the relationship between the described forms of subsistence farming and post-modern forms of urban gardening, and how the role of the different factors change in the future.

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