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Food Provision, Social Interaction or Relaxation: Which Drivers Are Vital to Being a Member of Community Gardens in Czech Cities?

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Abstract: Urban gardening provides city dwellers with a wide range of benefits. Research dealing with the benefits of community gardens (CG) is often qualitative, focused on their founders' motivations. The objective of our contemporary quantitative study is to understand why the inhabitants of Czech cities join CGs. The paper answers the research question: "What drivers exist for members' participation in CGs?" It also deals with how the drivers of CG members differ across CGs' locations in different urban structures. The data were obtained through an online survey from 28 CGs across Czechia, in both the capital and smaller cities. The importance of the different drivers was examined using statistical analysis and logit models. The research shows that the main motivation for the members is not crop production itself but, rather, the spending of leisure time, social contact and relaxation. Other key drivers include the passing on of experience and knowledge about nature to children, which is found mostly among the members with previous cultivation experience. Based on our results, CGs may contribute to the development of public life and to the improvement of public space; hence, the greater support by local decision makers or spatial planners can be justified.

Keywords: community gardens; drivers; Czechia; food self-sufficiency; cultivation experience; spending leisure time; social interaction; urban structure

1. Introduction

The importance of urban agriculture grows increasingly with manifestations of climate change, emphasis on food self-sufficiency, growing urbanisation and other factors. Urban agriculture can be broadly defined as "growing plants and raising animals within cities" [1] (p. 4). Urban agriculture is also becoming an integral part of social life in many countries. Several types of urban agriculture can be defined in the European settings, such as community gardens (CGs), allotment gardens, home gardening in one's own garden or balcony, etc.

This paper is focused on CGs. CGs provide a wide range of benefits for their members and other residents [2–4], resulting in an increased interest of citizens, policymakers and researchers. CGs can be defined as "plots of land used for growing food by people from different families, typically urban dwellers" [5] (p. 37). Exner and Schützenberger [6] (p. 1) added that "individual plots are often small and never fenced, some may be shared collectively". In contrast to that, gardeners in allotment gardens cultivate not communally but usually on their own land inaccessible to other gardeners.

Despite the benefits provided by CGs not only to their members [2], researchers have not yet fully explored what motivates gardeners to take part in CGs [7]. Originally, it was mostly due to the production function, but a lot of research shows that the reasons for membership have changed

recently compared to the early days of community gardening, e.g., [3,8]. Are these reasons the same for all gardens? Do the motivations differ with respect to their location in different parts of cities (urban structures)? Despite recent interest in CGs, motivation factors or drivers are not often systematically analysed across different CGs, and at the same time, research is often focused on the motivations of founders or coordinators [9–11].

The aim of this paper is to address the above-mentioned gaps in current research and to answer the following research questions: (i) *What drivers exist for members' participation in CG?* (ii) *How do the drivers and motivation factors of CG members differ across CG locations in different urban structures and across CG located in the capital city and elsewhere?* Research will help to understand the profile of participants and should help founders, decision-makers or spatial planners to engage more dwellers in urban agriculture activities like CG. The answers are based on a quantitative survey based on a sample of 28 CGs in Czechia. Members of the gardens responded to semi-closed and open-ended questions. The answers were then used as an input for the statistical analysis after data processing (including encoding of the open-ended answers).

The paper is structured as follows. The introduction is followed by a literature survey summarising the key drivers and motivations for the involvement in urban gardening, primarily for membership in CGs. This is followed by a brief introduction to the development of CGs in Czechia, the survey process, the questionnaire and methods used for the assessment. The results, discussion and conclusions follow.

2. Literature Review

Since CGs are a relatively new trend compared to allotment gardens, there are not many case studies examining the main drivers behind the motivation of urban community gardening in European cities [11]. Ginn [12] states that CGs were originally founded as a response to economic crises, and war conflicts with the aim of securing basic foodstuffs and provide job opportunities. These are, however, the reasons for establishing gardens nearly 80 years ago in the United Kingdom or later as a consequence of the economic crisis after 2008 in Spain and Portugal. Trendov [11] examined the motivations for the establishment of five CGs in Central European capitals. However, he only used existing case studies in literature and mass media interviews with the founders of CGs or their members. Based on the available information, he concluded that the main motivations for participating in the CGs are "access to fresh food, better tasting food, time to enjoy nature, health benefits, opportunity to socialise, landscape preservation, neighbourhood greening, and also a way to preserve local culture and tradition by involving youth in the project" [11] (p. 88). It is also important to say that most of the European CGs and the gardens studied here were established by bottom-up initiatives. Therefore, [11] he also adds that the founders' motivations are most commonly to improve their neighbourhood and its environmental functions. Furthermore, in a meta-analysis done by authors [13] on a global scale, the above factors were augmented with saving/making money, education and enhancing spiritual practice.

Neighbourhood improvement was also confirmed by authors [14,15], who emphasised the specific problem of post-communist cities. This, among others, rests on the need to cultivate devastated and abandoned sites, so-called brownfields. Moreover, they said that the establishment of CGs also promotes lifestyle changes, the spending of leisure time or shopping habits [14]. These changes are manifested, for instance, by focusing on the environmental quality of food production or more responsible shopping and consuming. This consumer lifestyle is commonly known as LOHAS—Lifestyle of Health and Sustainability [16]. This lifestyle is manifested by consumers being environmentally aware; socially attuned and with a world view that takes into account personal, community and planetary outcomes [17–19].

Scheromm [20] investigated in 2012 and 2013 gardeners' motivations in both CGs and family gardens. According to the private property bill passed by the French senate, family gardens are "land divided into allocated plots by territorial authorities or by gardening associations for private individuals practising gardening for their own needs and those of their family, with no commercial

application" [20] (p. 735). Thus, the social function of such gardens may not be fully provided. That is confirmed by the study where "the search for social connections" was shown more among gardeners in shared CGs [20]. The author identified the experience of pleasure, passion and happiness; the desire to grow their own vegetables and the need for nature/being outside as the most prominent motivations among 20 gardeners in both garden types. However, the research focused mainly on the diversity of gardeners from both family and CGs and did not aim to observe the diversity of gardens, which is one of the goals of this paper.

Lewis [10] investigated the main reasons for people becoming involved in gardening using a content analysis of 23 semi-structured interviews with gardeners of various kinds in Lausanne, Switzerland. The research focused mainly on allotment gardens and a sample of participants, including managers of family gardens, private gardeners, plantation gardeners and university gardeners. The authors identified three main reasons for gardening: wellbeing, social aspects of gardening and outputs. Wellbeing refers to both interactions with nature and the physical aspects of gardening. The interviews also showed that some gardeners' motivations can evolve over time. For example, some gardeners might begin gardening for one reason, but social aspects of gardening are valued once discovered. The outputs motivation encompasses both food (fresh/better-tasting, safer and self-produced) and knowledge gained [10].

Another round of semi-structured interviews with members of CGs was held in the Valencia Metropolitan Area, Spain [21]. The principal objective of the research was to find out whether the mission of a garden and its purpose differed depending on the garden type. Three garden types can be identified in Spanish cities: municipal (individual plots assigned by local authorities), associative gardens (individual plots for users promoted by an non-governmental organisation) and rental gardens rented by farmers on private land. Many urban dwellers in Spain began doing urban gardening after the crisis of 2008, whether as part of the struggle against unemployment and low income or for a reconnection with nature. The trend corresponds to the beginnings of CGs in the UK mentioned by [12]. CGs were later established in more cities in Spain as part of a strategy of urban renewal and neighbourhood empowerment [20]. The research showed that the economic crisis acted as a catalyst for the spreading of CGs into new places. Out of a total of 48 gardens in the study area, only three were established before 2008, and "the vast majority of them are committed to food sovereignty and social or community building goals" [21] (p. 300). A similar conclusion was made by a study from Portugal [22], according to which food security was, in fact, the only significant motivation for the unemployed and low-income applicants. The motivation for joining urban agriculture—specifically allotment gardens, in this case—was examined using a logit model. The objective was to determine whether the motivations were affected by the characteristics of applicants. Another characteristic group of applicants included upper and intermediate professional groups, for whom the significant motivations were food safety, health and environmental concerns, recreation and education.

However, [23] added that economic crises act as a catalyst for most community-based cooperation. Analogous community-based cooperation is evident in the current situation influenced by the COVID-19 pandemic. Therefore, it is probably mostly not the main reason for establishing and participating in CGs in other countries, such as Switzerland and the Netherlands, which were not affected by the crisis very much [24], or in central Europe, where an increase in the numbers of CGs has only occurred in recent years without a link to the economic crisis.

Generalisation of the current above-presented results is limited by the fact that most of the cases were qualitative research using semi-structured interviews. They may attain results that do not need match findings of previous research. It can be phenomena that are locally and context-specific or may be caused by methodology. As admitted by authors [10], quantitative research may overcome this limitation and provide results that can be generalisable. The present paper follows up on this limitation and applies quantitative research to overcome this limitation and covers a wide range of gardens and their members across Czechia.

3. Materials and Methods

3.1. Community Gardens in Czechia

Urban gardening has a long tradition in Czechia [14]. As [15] stated, more than 40% of the population are now producing their own food, which is a more or less stable figure in the long run. The most typical form in Czechia is household gardens (71% of households grow food) and allotment gardens (11% of households) [15]. Production farms are located on city outskirts, but their importance is limited. As mentioned by authors [14,25], allotment gardens were first set up mostly in large cities and affluent areas thanks to industry and then spread to smaller cities. The same goes for CGs and their current expansion.

One of the earliest gardens considered to be a CG is in Brno-Královo Pole, [26] established in 2004, which primarily performed a recreational function from the start thanks to its openness. Several gardens were set up in Prague (the capital of Czechia) in the same year. More gardens emerged progressively in large cities but only began spreading to smaller cities in 2018 [27]. At present, the voluntary database mapko.cz only registers more than 110 gardens, half of which are situated in Prague. They are not exclusively in large cities; some exist in small cities with a population of a few thousand. CGs are located in Czech cities within different urban structures (organic urban structure, urban block structure, single detached houses, paired villas and row-houses and estate and high rises). Although most of the Czech CGs were established bottom-up [9], in recent years, the number of gardens established top-down has increased. As [27] said, most of the gardens combine several of the basic functions: (i) productive, (ii) leisure, (iii) therapeutic and (iv) educational-correctional.

3.2. Questionnaire Survey

Contrary to the prevalent qualitative surveys made in the area, this study chose a quantitative form of data collection using a questionnaire survey distributed electronically. The questionnaire survey was carried out in three waves: two in 2018 and the last one in 2019. The first collection resulted in 37 responses. We approached two CGs in Prague, namely CG Vidimova and CG Kuchyňka. The responses came from nearly two-thirds of all the members of the gardens. The first survey was of a pilot nature. Following the assessment of the pilot data collection, we set a target of expanding the sample with additional gardens in order to cover gardens in smaller cities as well. The responses from the different surveys could be assessed collectively, since the questionnaire was not modified beyond minor formulation changes.

The second wave approached another 25 gardens across Czechia—namely, their coordinators—with a request to spread the questionnaires among their members. This wave resulted in 42 responses from 8 CGs; the return rate based on the number of gardens was 32% of the CGs approached. The last wave contacted another 45 CGs, again across the country, including CGs from both the capital and smaller cities. We received 128 responses from 18 gardens (return rate of 40% in terms of the number of gardens approached). The dataset contained 207 responses. Each wave approached different CGs, meaning there was no overlap in the responses.

The gardens contacted were categorised. Two classifications of gardens were made for examining the second research question (How do the drivers and motivation factors of CG members differ across CG locations in different urban structures and across CGs located in the capital city and elsewhere?). The first one distinguished between CGs in Prague (capital of Czechia with 1.3 million inhabitants) and outside it. The second division considered the location of CGs in different urban structure types. The first classification, into CGs in and outside Prague, was based on the idea that motivations and behaviours of CG members may differ for residents of big cities compared to other areas (smaller cities) in Czechia. Prague dominated with the number of CG until 2017. This idea could also be supported by findings that income is correlated with gardening behaviour [28] or leisure-time physical activities [29,30]. In past years, the highest average income was recorded in Prague compared to the average income in other cities in Czechia. Prague CGs yielded 147 responses

from 14 gardens. The responses from CGs outside Prague amounted to 60 from 14 gardens located in cities Kutná Hora, Tábor, Ústí nad Labem, České Budějovice, Olomouc, Liberec, Ostrava, Plzeň and Brno with a population of between 20 thousand and 380 thousand inhabitants.

The second classification was based on urban structures categorised for Czech cities [31] at the level of city blocks. For simplicity, the original seven types were merged into three categories, which reflect the prevalent type of urban structures in the immediate vicinity of the CG with respect to alternative options for growing crops. The CGs were thus divided into categories: (i) open block structure, (ii) urban structure of estates and high rises and (iii) urban structures of the city centre. Open block structure include all city blocks of villas and family houses corresponding to the three originally defined categories defined by [31]—garden city urban structure, urban structure of single detached houses and urban structure of paired villas and row-houses. In this structure, the alternative to CGs is cultivation in their own gardens. Housing estates offer balconies and, rarely, gardens shared by a group of buildings. The category urban structures of city centres consists of organic urban structures and urban block structures [31], which usually form the city centres in Czechia. In the city centre, the CG frequently has no alternative for growing their own crops or a limited space on the balcony. Allotment gardens are a common alternative for all the categories. Table 1 shows the numbers of gardens and responses for the different garden types.

Table 1. Numbers of community gardens (CGs) and respondents based on urban structure types.

Urban Structure Type	Number of Gardens in Sample	Number of Responses in Survey
Open block	7	65
Housing estates	10	73
City centre	11	69
Total	28	207

3.3. Questionnaire Structure

The survey was implemented by means of Google Forms. The questionnaire (see Supplementary Materials) was structured into 8 sections, each covering a specific topic. The goal was to find comprehensive information about the CG members and their motivations. Thus, the respondents answered questions progressively in the following sections: (i) previous cultivation experience, (ii) motivation for cultivation, (iii) relationship to CG, (iv) lifestyle, (v) proposals for improving the garden, (vi) benefits of the garden for its surroundings, (vii) data on the garden and (viii) socioeconomic indicators. Some of the sections or actual questions go beyond the scope of this paper; yet, we chose to present a complete overview of the topics for inspiration. The first section following the questionnaire introduction dealt with the length of the CG respondent's membership and how they learnt about the CG, as well as previous cultivation experiences. All the questions were semi-closed, permitting a choice of an option or completing the "other" option.

Existing experience was followed by a section dealing with the motivation for membership. This section was crucial for answering the first research question, in particular (*What drivers exist for members' participation in community gardens?*). In the first sub-question, the respondent was asked to state what led them to become a CG member and growing their crops there. The next closed-ended question asked the respondent to choose up to three most important drivers out of the 10 suggested that led them to grow crops in a CG. The options were based on an analysis of existing papers (notably, [10,11,13]). As well as the original self-supply function and provision of quality crops and crops of known origins, they included options concerning the spending of leisure time, joy of gardening, savings of costs due to their own production, relaxation and meeting other people and leisure and education for children.

The section on members' relationship to CG featured a combination of open-ended and semi-closed questions. The objective was to find out not only the person's position within the garden (coordinator vs. member) but, also, their degree of involvement; frequency and length of visits; crops grown and other services used by the member (e.g., composting, workshops, etc.).

According to many authors, e.g., [7,14,32], the growth in CG popularity and their development is due to a change of people's lifestyles. Here, we were interested in how the respondents spend their leisure time and to what extent they consider, and reflect when shopping, the quality and origin of food.

Our survey also asked about the shortcomings of gardens that the members would like to change. This section was followed by an open-ended question mapping the perception of the garden's influence on its outer surroundings. Moreover, the respondent stated the garden's identification data (name and city) and their sociodemographic data, such as age, sex, education, housing type (house vs. flat) and distance and access to the garden and means of transport used to reach the garden.

3.4. Statistical Evaluation Methods

Basic descriptive statistics were performed over the complete dataset; answers to selected open-ended questions were encoded. The open encoding resulted in the establishment of categories to which the different open-ended questions were assigned. The authors did so to aggregate all answers and see which were mentioned more frequently, etc.

The significance level was set at 5% for the entire statistical analysis. Tests with *p*-values in the range 0.05–0.1 were evaluated as marginally statistically significant.

To test whether there was a significant relationship between two nominal variables, the chi-squared test of independence was used [33]. It was sometimes necessary to merge suitable categories in order to meet the basic assumptions on the sufficient frequency of observations in each cell of the contingency table. The Kruskal-Wallis test was applied in cases of ordinal explained variables and nominal explained variables [33].

The strength of association was measured by Cramer's V ($V \in (0,\ 1)$) for two nominal variables and Spearman's rank correlation coefficient ($r_s \in (-1,\ 1)$) for two ordinal variables [33].

The respondents were asked to select the three most important drivers out of 10 possibilities. Data were transformed so that for each respondent and information on whether (s)he selected a given driver among their three most important ones were available. Therefore, the drivers were explained using a binary data regression model—the logit model. A similar approach was also proposed by other authors who modelled the selection of drivers as well [22,34] or whether CG members continued to garden or not [35]. The probability of success p is given by Equation (1), where $\mathbf{x}$ is a matrix of observations, and $\boldsymbol{\beta}$ is a vector of the coefficients of appropriate dimensions [36].

$$\mathrm{p} = \mathrm{Prob}\left(y = 1 \middle| \mathbf{x}\right) = \frac{e^{\mathrm{z}}}{1 + e^{\mathrm{z}}} = \frac{e^{\mathbf{x}'\boldsymbol{\beta}}}{1 + e^{\mathbf{x}'\boldsymbol{\beta}}}; 0 < \mathrm{p} < 1 \tag{1}$$

Equation (1) may be rewritten in terms of the log-odds (the logarithm of relative chance of success) as

$$\log\left(\frac{\mathrm{p}}{\mathrm{p}-1}\right) = \mathrm{z} = \mathbf{x}'\boldsymbol{\beta} \tag{2}$$

From Equation (2), it is clear that the coefficients in the logistic regression have a linear interpretation against the log-odds (of selecting a particular driver as one the most important ones). A positive coefficient suggests a positive change in log-odds of selecting a given driver and vice versa [22,36]. Interpretation in this article is focused solely on the general direction of estimated coefficients and their effects on the likeliness of selecting a given driver as one of the most important ones.

The model was estimated with the maximum likelihood method [36]. Evaluation of the whole model and tests of linear restrictions were made using the likelihood ratio test [37]. The quality of the models was assessed using McFadden's pseudo R-squared [36] and the percent of correctly predicted cases [38].

The following model was designed for CG members' motivation to join:

$$\begin{aligned} z_{\text{driver}} &= \alpha + \beta_1(\text{gardening less than 2 years}) + \beta_2(\text{gardening for 2–5 years}) \\ &+ \gamma_1(\text{CG in housing estate}) \\ &+ \gamma_2(\text{CG in open block}) + \lambda(\text{CG in Prague}) + \theta(\text{children}) + \phi(\text{female}) + u \end{aligned} \quad (3)$$

Variables associated with the β coefficients corresponded to the question: When did they join (any) CG? There were five possible answers: started gardening this season, gardening since last season, gardening for 2–5 years, gardening for over 5 years and other. The first two possible answers were joined into gardening less than 2 years, as the authors considered that information sufficient and wanted to make the estimation more robust. Two respondents chose the answer other. The respondents treated these observations as if the answer was not available. Other variables were either based on the division of CGs according to their location (CG in housing estate, CG in open block or CG in Prague) or on unchanged answers from the questionnaire (number of children and sex). A detailed definition of the variables and their reference categories is provided in Table 2.

Table 2. Logit models for identifying the factors affecting drivers for members' participation in CGs.

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Constant	0.91	−0.78	−1.91 ***	0.33	0.53	−2.63 ***
	(0.72)	(0.93)	(0.73)	(0.69)	(0.69)	(0.83)
Gardening for less than 2 years (dummy)	**1.04**	**−1.92** **	0.37	**−0.46**	**−1.36** **	0.18
	(0.64)	**(0.79)**	(0.63)	**(0.59)**	**(0.62)**	(0.68)
Gardening for 2–5 years (dummy)	**0.01**	**−1.27**	0.90	**−1.31** **	**−0.06**	0.31
	(0.65)	**(0.79)**	(0.63)	**(0.62)**	**(0.63)**	(0.69)
CG in housing estate (dummy)	**−1.07** ***	**1.42** **	0.46	**−0.06**	−0.04	−0.18
	(0.39)	**(0.66)**	(0.38)	**(0.37)**	(0.38)	(0.42)
CG in open block (dummy)	**-0.18**	**1.56** **	−0.41	**−1.06** ***	0.12	−0.11
	(0.40)	**(0.65)**	(0.40)	**(0.41)**	(0.39)	(0.44)
CG in Prague (dummy)	−1.02 ***	0.39	0.94 **	0.17	−0.31	−0.36
	(0.37)	(0.57)	(0.37)	(0.35)	(0.35)	(0.39)
Children (scale)	−0.35 **	−0.48 **	0.32 **	−0.02	0.27 *	0.71 ***
	(0.15)	(0.23)	(0.14)	(0.15)	(0.15)	(0.17)
Female (dummy)	0.16	−0.80 *	−0.38	−0.04	−0.07	1.33 ***
	(0.35)	(0.47)	(0.34)	(0.34)	(0.34)	(0.44)
McFadden's pseudo R^2	0.1249	0.1094	0.0696	0.0646	0.1041	0.1485
Log likelihood value	−124.24	−67.7	−125.76	−124.29	−126.52	−109.03
Log likelihood value for trivial model	−141.98	−76.01	−135.17	−132.88	−141.21	−128.05
Correctly predicted (%)	0.6878	0.8829	0.6634	0.6488	0.678	0.7415
Number of observations	205	205	205	205	205	205

Explanations: Model 1—joy of gardening, Model 2—food self-sufficiency, Model 3—spending leisure time, Model 4—relaxation, Model 5—opportunity to socialise and Model 6—passing on of knowledge to children. Reference categories are: gardening for over 5 years, CG in the city centre, all cities apart from Prague and male. Significance levels: *** 0.01, ** 0.5 and * 0.1. If dummy variables representing a nominal variable are jointly significant at the 5% significance level, coefficients are shown in bold. Numbers in parenthesis are standard errors of coefficients. Two observations were excluded from the models due to missing values.

The nine drivers modelled included joy of gardening, food quality, known origin of food, food self-sufficiency, insufficient space for gardening on the balcony, spending leisure time, relaxation, opportunity to socialise and passing on of knowledge to children. The driver monetary savings on crop purchase was not modelled due to the insufficient quantity of observations and the option others due to lack of coherence.

In addition, it turned out that all the respondents who marked known origin of food among the three most important drivers always marked *food quality* as well. The models were thus identical for both drivers. However, since the models did not turn out to be statistically significant as a whole for these two drivers (*known origin of food and food quality*), as well as for the driver *insufficient space for gardening on the balcony*, we did not quote them below. The model for the driver *spending leisure time* (model 3) was statistically significant as a whole at a 10% significance level. The other models for

the drivers *joy of gardening* (model 1), *food self-sufficiency* (model 2), *relaxation* (model 4), *opportunity to socialise* (model 5) and *passing on of knowledge to children* (model 6) were statistically significant as a whole at a 5% significance level.

The descriptive statistics, the dependence analysis and the logistic regression were performed using the statistical software RStudio (PBC: Boston, MA, USA, 2020) [39–43]. The figures were created using [44–46].

4. Results

The study examined the reasons why people participate in CGs in Czechia. The aim of the questionnaire survey was to understand the community gardener profile and gardeners' motivations and, hence, the demands and requirements of city dwellers towards urban public space, with the focus on green space and CGs.

It focused on 10 main drivers based on a literature review and the historical trend of gardening in Czechia. This study also aimed to identify geographical differences—whether or not drivers differed across different location of gardens (i) in the capital city and elsewhere or (ii) in different urban structures (open block, housing estates and city centres).

The following table shows the basic respondent characteristics. The data in Table 3 indicate that CGs are visited primarily by younger productive-aged people. More than two-thirds are people below the age of 40. They are mostly tertiary-educated people living in flats with another adult. In addition, 65% of the households include at least one child.

Table 3. Overview of respondents—basic sociodemographic characteristics (n = 207).

Sociodemographic Characteristic		All
Age in %	14–20 years	0.5
	21–30 years	15.9
	31–40 years	56
	41–50 years	18.4
	51–65 years	6.8
	66 years or older	2.4
Gender	Females in %	71.0
Number of adults in household	Average/Modus	2.0/2.0
Number of children in household	Average/Median	1.2/1
Live in %	flat	93.2
	house	6.8
Education in %	No school leaving certificate, primary school	0
	Secondary school	29.5
	University degree	70.5

As part of the characteristics, it is interesting to observe garden accessibility. Table 4 shows that more than half the CG members live close to the garden, within one km from it. Two-thirds of the members spend no more than 15 min travelling from home to the CG. However, the rest of the respondents are not discouraged by higher time consumption. The respondents visit the gardens most commonly two to three times a week.

Considering the presentation of the model results, it is also interesting to mention the information relating to previous cultivation experience and the duration of respondents' CG membership (see Table 5). Some cultivation experience was reported by 84% of the members, frequently a combination of multiple types of experience. Thus, only 16% of the members had no experience with cultivation before joining their CG. More than half the respondents were members of their CG for only one or two growing seasons.

Table 4. Overview of respondents—garden accessibility and frequency of visits (n = 207).

Characteristic		Frequency
Beeline distance from home to garden in %	less than 0.5 km	30.4
	0.5–1 km	26.6
	1 to 2 km	20.3
	2–5 km	17.4
	more than 5 km	5.3
Means of transport in %	On foot	60.9
	Bicycle/kick scooter	15.5
	Public transport	15.0
	Car	7.7
	Other	1.0
Travel time in %	less than 5 min	23.7
	5–15 min	45.9
	15–30 min	24.2
	30–45 min	4.8
	45–60 min	1
	More than 1 h	0.5
Garden visit frequency in %	6 to 7 days in a week	4.8
	4 to 5 days in a week	14.0
	2 to 3 days in a week	47.8
	once a week	22.2
	less often	11.1

Table 5. Overview of respondents—previous cultivation experience and duration of CG membership (n = 207).

Characteristic		Frequency
Cultivation experience in %	Cultivation in home garden in previous years	32.9
	Cultivation at holiday home, allotment, grandparents' garden, etc.	44.0
	Cultivation in flat/on balcony	40.6
	No previous cultivation experience	15.9
Duration of CG membership in %	1st year	25.6
	2nd year	32.4
	2nd–5th year	33.8
	More than 5th year	7.3
	Other	1.0

The questionnaire survey in CG across Czechia identified their members' motivations. The respondents first answered the open-ended question "What made you become a member of a community garden and cultivate your crops there?" The results of this question were intended to present the spectrum of motivations across members. Thus, it was considered to present a single mention of motivation since, according to [47] (p. 2), "one occurrence of a piece of data, or a code, is all that is necessary to ensure that it becomes part of the analysis framework. Frequencies are rarely important in qualitative research, as one occurrence of the data is potentially as useful as many in understanding the process behind a topic". The second intention was to verify the accuracy of the ten selected drivers in the following closed-ended question.

It must be mentioned that the reasons provided most frequently were the ones that were identified before in the existing literature. A simple analysis showed that the 10 selected drivers for the close-ended question covered over 85% of all the reasons mentioned in the open-ended question. Fifteen percent was primarily covered by ecological reasons, acquiring new experience and improving of the surrounding areas. The respondents' reasons cited for joining a CG included being outside, as well as in contact with nature (digging in the ground). Additionally, interest in growing their own crops was mentioned. This reason was also related to improved self-sufficiency, as well as

better-tasting and higher-quality crops without chemical treatment or, more generally, ecological reasons. Another reason given was insufficient space for cultivation on the balcony or the general impossibility of growing crops elsewhere. Another frequently cited reason was previous cultivation experience linked with a loss of the ability to grow crops at home after moving. Moving was also mentioned in connection with other reasons, which were not related to changes in home cultivation conditions but, rather, with socialisation and the establishing of new relationships or getting to know new people with similar mindsets. Socialisation as the reason for joining a CG was mentioned by other gardeners too, such as those on parental leave or pensioners. It was not always in order to meet new people but, also, as a place to meet parents or grandchildren. Finally, the respondents mentioned activities with children. The motivations included both being outside and the passing on of experience and the demonstration of how crops are grown or, generally, time spent meaningfully. The passing on of experience was not mentioned only in connection with children but in relation to other community members too or, conversely, as drawing inspiration and experience for one's own cultivation at home. For some gardeners, sufficient motivation for joining the CG activities was unwinding and relaxation after work. The founders and others also cited the improvement of the surroundings where the gardeners live as a motivation.

In addition to this open-ended question, the following closed-ended question presented the respondents with a choice of the three most important drivers for joining the CG out of 10 options and the eleventh option "other". The response analysis first produced histograms showing the differences between the most important drivers for two groups of gardeners: gardeners with previous gardening experience (n = 174) and gardeners without previous experience (n = 33). The total number of observations (n = 582) was less than the possible total of observations due to the fact that not all respondents chose the maximum of three drivers. Figure 1 shows that the importance of drivers differing for these two different groups. The most important driver for gardeners with previous gardening experience was the joy of gardening—which can also be described as the above-mentioned connection with nature and physical contact with the soil, social interactions, spending leisure time and passing on of knowledge to children. On the contrary, the most important driver for gardeners without previous cultivation experience was the ability to relax, followed by social interactions, joy of gardening and spending leisure time.

The histogram in Figure 1 also shows that the four most important drivers among gardeners without previous experience outweigh the other options, such as food quality, food self-sufficiency and others. Moreover, the statistical analysis showed that there is a weak dependence between the driver passing on of knowledge to children and previous experience (Cramer's V is 0.18). It turns out that if a gardener has previous experience, they want to pass it on to children. A weak dependence was also proven between the relaxation driver and previous experience (Cramer's V is 0.20) in the sense that, if the gardener does not have previous experience, they joined the CG with a vision of relaxation.

The logit models (see Table 2) were then used to explain six drivers: joy of gardening (model 1), food self-sufficiency (model 2), spending leisure time (model 3), relaxation (model 4), opportunity to socialise (model 5) and passing on of knowledge to children (model 6).

The results of the six above logit models show that gardeners' characteristics affected their motivations to become CG members. They show how the characteristics affected the likelihood of the driver (not) being mentioned by the respondents:

The driver joy of gardening (model 1) is significantly less frequently mentioned by participants from CGs in a housing estate than by respondents from CGs in a city centre, by participants from Prague and by participants with children.

The driver food self-sufficiency (model 2) is significantly less frequently mentioned by respondents gardening for less than two years than participants gardening for more than five years and by respondents with children and by women. The driver food self-sufficiency is significantly more frequently mentioned by respondents from CGs located in a housing estate and from CGs in an open block than respondents from CGs in a city centre.

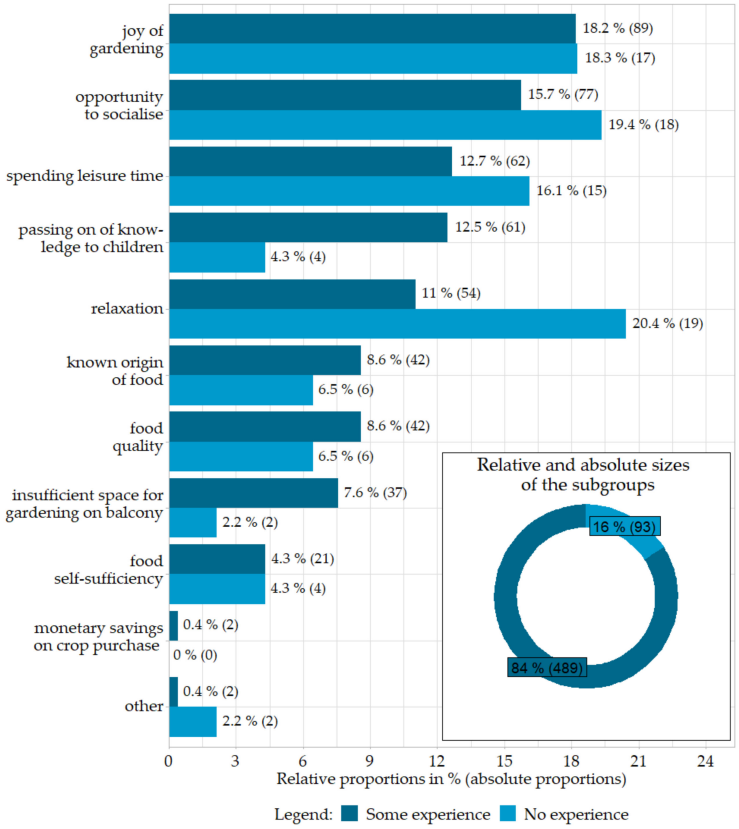

Figure 1. Relationship between the choices of the most important drivers and gardening experience.

The driver spending leisure time (model 3) is significantly more frequently mentioned by respondents from Prague and those having children. The model did not prove a significant effect on the other variables.

The driver relaxation (model 4) is significantly less frequently mentioned by respondents gardening for two–five years than participants gardening for more than five years and by participants from CGs located in an open block than respondents from CGs in a city centre.

The driver opportunity to socialise (model 5) is significantly more frequently mentioned by respondents with children. This driver is significantly less frequently mentioned by participants gardening for less than two years than those gardening for more than five years.

The driver passing on of knowledge to children (model 6) is significantly more mentioned by respondents with children and by women.

To answer the second research question (How do the drivers and motivation factors of CG members differ across CG locations in different urban structures and across CGs located in the capital city and elsewhere?), we observed the effect of garden location in the urban structures and the effect of city size (capital vs. other cities). Table 2 above shows the results of dependence between garden location within the city and the different drivers, as well as the dependence between city size and the different drivers in the logit models. Figure 2 indicates information about the relationship between the choice of the three most important drivers and the CG location in the city centre, in an open block or in a housing estate.

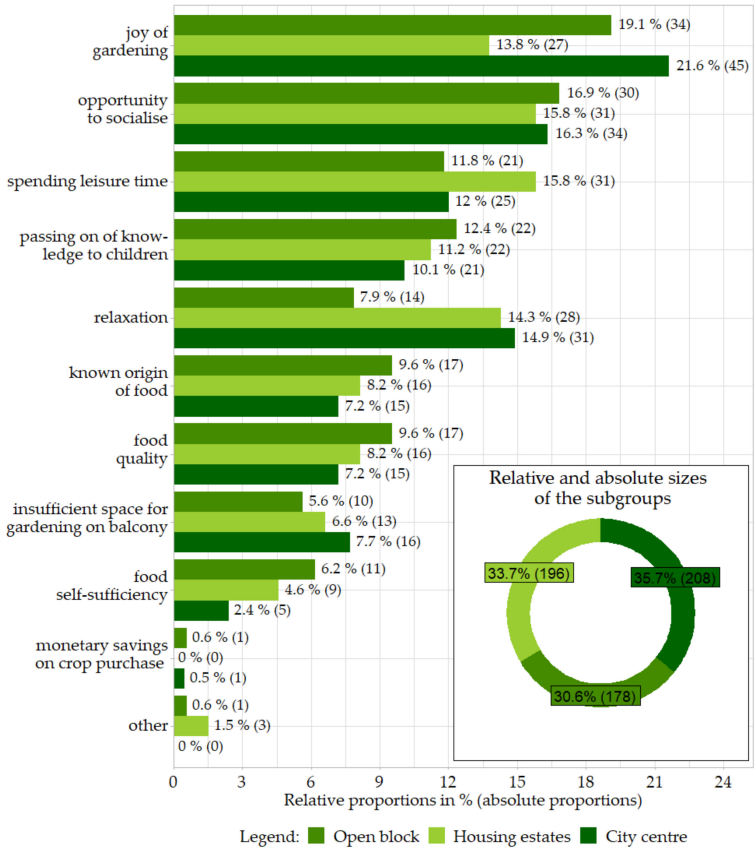

Figure 2. Relationship between choice of most important drivers and CG location within a city.

The single most important driver for joining a CG located in a city centre is the joy of gardening, followed by social interactions and relaxation. For members in the housing estates, the importance of drivers for joining is the most equalised, the most important ones including, equally, social interactions and spending leisure time, followed by relaxation and joy of gardening. The most important drivers for joining CGs in an open block urban structure include joy of gardening and social interactions, followed by passing on of knowledge to children and spending of leisure time. The gardeners most profiled are in CGs located in a city centre, where joy of gardening significantly outweighs all other drivers in its importance.

We then performed chi-square tests to find out whether there is any statistically significant relationship between the selection of the most important drivers and garden location (i) in an urban structure (in an open block, in a housing estate and in a city centre) and (ii) in the capital city and elsewhere. The tests did not prove any statistical significance for any of the dependencies, and it can thus be stated that garden location has no statistically significant effect on the selection of drivers.

5. Discussion

The results of this paper show that drivers for joining CGs are affected by several characteristics of not only the gardeners but the gardens themselves. Previous international research showed that we can identify distinct groups of gardeners that are specific in their drivers for becoming a CG member, such as unemployed and low-income persons or intermediate professional groups [22]. According to this research, a distinct group with specific drivers for joining a CG in the Czech setting are women and persons with children. The results show that women view it as more important than men to pass on knowledge to children. In contrast, men found the driver food self-sufficiency to be important much more frequently than women. Generally, however, the latter driver was mentioned only rarely compared to the others.

In the Czech context, CGs usually provide their members with only limited space for cultivation. The cultivation plots are mostly too-small (often a single bed sized 1 m^2) to be able to grow a quantity of crops that could substantially cover a household's consumption and, thus, reduce the costs of purchasing fruits and vegetables [26,48]. Members interested in food self-sufficiency therefore may combine CGs with other community services, such as community-supported agriculture, which establishes a direct link between the consumer and the farmer without intermediaries such as shops [49]. As [50] suggested, this method is more often applied by households comprising a couple than an individual. Alternatively, people interested in self-supplying use the CG as a first step and later search for their own garden, where they expand their production (see the open-ended questions in the questionnaire survey, where several members cited learning to cultivate as their motivation).

In addition, the drivers spending leisure time, opportunity to socialise and passing on of knowledge to children are more important for people with children than for those without children. CGs in Czechia often have a playground, thus becoming an alternative for families with children to ordinary public playgrounds. Moreover, they are usually in fenced areas, where parents are not afraid to allow their children to play without supervision more than in public playgrounds. Gardeners without children, compared to those with children, regard the joy of gardening and, again, food self-sufficiency as more important drivers for joining a CG. The importance of the driver joy of gardening can be explained by the fact that childless gardeners can spend more time in the CG actually gardening. Conversely, gardeners with children make use of other functions, including the play areas, where they spend a part of their time, along with their children, beyond actual gardening and interact with other parents in the garden. It might therefore be useful to study different members' total production over a time period or for the time for which members do actual gardening when in the CG. However, we did not ask for this information in our questionnaires among members.

The open-ended question showed that some members—notably, garden founders or coordinators—finance the functioning of the garden with their own resources, which significantly exceed the value of the crops produced. Other CG gardeners in Czechia pay membership fees as well, typically on an annual basis. In addition to studying the size of production, it would thus be advisable for future research to study the size of fees, their development, if any, and the development of gardeners' willingness to pay for the renting of soil in CGs or the difference in willingness to pay in light of the different drivers for joining the CG.

Additional important characteristics are previous cultivation experience and the duration of membership in the current CG. It is important to note that the survey showed that the overwhelming majority of the gardeners had some previous cultivation experience, most commonly at a weekend home, grandparents' garden, in their own garden at home or in a flat or on a balcony. Only 16% of the approached gardeners had no previous cultivation experience before joining their CG. In spite of that, we can confirm the recent finding [10], contrary to older studies [51,52], that a lack of cultivation knowledge and experience is not an obstacle to joining a CG and cultivating crops there. Quite to the contrary, the answers to our open-ended question indicated that some of the members joined their CG precisely with the aim of acquiring new skills for growing crops at home. However, the low representation of people without experience may be due to the fact that people without experience gradually lose their interest in cultivation and stop going to the garden [53].

The fact that the absolute majority (84%) of the respondents had some previous gardening experience may be related to the finding that motivations for joining the CG in the open-ended question included insufficient space for cultivation at home or a total loss of ability to cultivate at home after moving. Given the growing urbanisation in Europe, its anticipated further growth [54] and migrating of the population into cities, we can continue to expect increasing interest in community gardening. It may also be one of the reasons why Czechia is only experiencing a growth in CGs in the last decade, unlike the case in other European countries [12]. However, the more prominent growth in CGs in Portugal and Spain has also occurred only recently in the years after 2008 as a reaction to the economic crisis in order to reduce the expenditures on staple foods for the

most affected population classes. This trend cannot be observed in Czechia, though, because monetary savings on crop purchases was identified as a driver for joining a CG by only two members out of the total of 207. Due to the high proportion of gardeners with previous experience, and the high proportion of the population of Czechia growing their own food (40%), it is probable, according to [15], that part of CG members do not appreciate the monetary savings benefits, because they are already obtaining their own and cheaper crops from elsewhere. The members' characteristics may play a role, too, with university graduates prevailing among the members, as they do not have to worry about prices too much given their incomes. The survey showed that only 9% of the respondents considered only the price when choosing foodstuffs. Conversely, 72% were willing to pay extra money for quality and known origin. Only 4% of the respondent were self-sufficient.

As for the duration of CG membership, it again substantially affected the declared drivers for joining a CG. For gardeners growing crops in a CG for more than five years, the driver food self-sufficiency was more important than for those growing for a shorter time period. Likewise, the opportunity to socialise was more important to them than for gardeners growing for less than two years. In contrast, gardeners growing crops in a CG for more than five years regarded the driver joy of gardening as far less important than members growing for less than two years. That may correspond to the finding [10] that motivations for cultivating crops in a CG may evolve over time. Long-term members may also have responded to why they continue to be CG members at present rather than why they joined a CG years ago.

The survey results also indicated that the importance of different drivers for joining a CG was also affected by the garden's location within the city. Although our statistical tests failed to prove any statistically significant effect of a CG's location within the city on the choice of drivers, the logit models did prove the effect of garden location on the selection of some drivers. However, the unimportance of garden location for the selection of drivers might also be affected by the fact that half of the gardens in the sample were in smaller cities. There, the garden location might be insignificant due to the surrounding development or easily accessible due to the short distances from homes to the garden.

The statistical significance of the location of CGs in the capital city and elsewhere was demonstrated for only two drivers. The driver joy of gardening was more important for gardeners outside the capital city. The driver spending leisure time was more important for gardeners in Prague. This might be related to the findings of [30], that a higher income was associated with more reported leisure and less house/care work. The residents of the capital city can give greater attention to leisure time activities. Interestingly, according to the chi-square test, the distinction between gardens in the capital and outside it turned out to be an unimportant characteristic. Thus, we did not confirm the assumption that members' motivations in smaller cities may differ, whether due to lower household incomes or, conversely, to possible changes in urban layouts, the suppression of public space, greater social isolation and segregation in big cities [55–57]. A possible explanation is that social isolation also occurs in smaller cities. Alternatively, this finding might be explained by the fact that CG members might generally be inclined to greater social interactions. For this reason, the demand for shared meeting spaces occurs in smaller cities as well.

6. Conclusions

Unlike some other European countries, such as the United Kingdom or France, the number of CGs in Czechia has been growing, along with their popularity only in recent years. Given the increasing popularity not only in Czechia, however, their importance in cities can be expected to continue growing, and more and more CGs can be expected to appear, including in smaller cities. The results of our study show that the members' principal motivation was not crop production, as such, but, rather, the opportunity to spend leisure time productively, meet neighbours or people with similar mindsets and relax.

However, motivations for joining a CG and becoming a member are influenced by several characteristics; women and families with children can be recognised as a distinct category of members, as they perceive a CG as a place to be outside in the greenery and, mostly, as a place where they can pass

on their experience and knowledge of nature and crop cultivation to their children. Drivers for joining a CG were also affected by previous cultivation experiences and the length of cultivation experiences in a CG. The effect of garden location within the city structures on the drivers was not found to be statistically significant, though. It was thus confirmed that multiple basic CG functions overlapped. The joy of gardening, social interactions and spending of leisure time were the common drivers for the majority of members. The passing on of experience to children played an additional important role for members with previous cultivation experiences. In contrast, almost none of the members perceived monetary savings due to the growing of their own crops as a main driver, which was a significant motivation, e.g., in Spain and Portugal in the period after the economic crisis of 2008.

The results indicated that CGs in Czechia provided their members with an important place for spending leisure time, developing local communities and, most importantly, relaxation and being outside. Thus, the cultivation of crops was not the primary objective of their members but, rather, a means for community development and spending leisure time. The overwhelming majority of Czech CGs are currently grassroot initiatives of local residents. Since nature and greenery, as well as social contact and social inclusion, contribute to a better quality of life, CG development could be supported by local decision-makers or spatial planners for planning and decisions on the use of public spaces in cities, such as by the provision of municipal land. CGs may contribute to the development of public life and to the improvement of public spaces.

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