



Growing together – How institutional structures influence communal agricultural prosumption types and their potential for continuity

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ABSTRACT

Communal agricultural prosumption (CAP), the practice of producing food for one's own consumption within a communal organisation is becoming more prominent in everyday life. Although there has been ample descriptive research on specific CAP types, there is a lack of a comprehensive overview of the similarities and differences in terms of the structures, rules and continuity of CAP types. Therefore, we exploratively compare three Swiss CAP types: allotment gardens (AGs), community gardens (CGs) and community supported agriculture (CSA). We collect data using qualitative Grounded Theory approach and rely on institutional theory to characterise the CAP types' institutional structures, rules and their potential in terms of continuity, as well as their perceived outcome on society. The results show similarities and differences in the perceived outcomes of these types, as well as in their individual requirements, institutional structures and socio-political agendas. Community-centred types, such as CSAs and CGs, successfully generate political agency and collective structures, yet financial barriers limit broader participation. In contrast, individual-centred types, such as AGs, provide autonomy, but impose high knowledge requirements and lack strong political leverage, which poses crucial challenges for long-term viability. To ensure the continuity of all three CAP types, we propose targeted policy and institutional strategies that enhance accessibility, reinforce inter-institutional networks, and align CAP governance with broader sustainability goals.

1. Introduction

Public demand for shorter production chains and easy access to regional and organic produce has been on the rise in the 21st century (Ilbery and Maye, 2005; Jensen et al., 2011). In fact, some people turn their gardens or balconies into greenhouses and vegetable plots to produce and consume their own food as a way to contribute to sustainability (Mullins et al., 2021; Music et al., 2021). Individuals without access to gardening space often find the solution in gardening organisations such as community-driven gardens (Kingsley et al., 2022; Schoen et al., 2021). These individuals, whether in private or communal gardens, are producers and consumers of their own goods, which is known as prosumption (Ritzer and Jurgenson, 2010; Toffler, 1980). More specifically, their activity is considered agricultural or food prosumption (Palmioli et al., 2020; Veen et al., 2020), which is deemed crucial for building resilient, local, sustainable and community-oriented food systems.

In developed countries, including Switzerland, there has been an increased interest in the communal types of agricultural prosumption,

especially after the COVID-19 pandemic, leading to a rise in the popularity of gardening institutions, manifesting in successful new foundations, waiting lists, or less membership rotation (Bieri, 2021; Busby, 2020; Meister, 2020 Shirvell, 2021). These communal institutions focus on food production and community building and empowerment (Ghose and Pettygrove, 2014; McVey et al., 2018; Ostrom, 2007). There are three major types of communal agricultural prosumption (CAP) in Switzerland: 1) community gardens (CGs) are small plots of land often adjacent to living quarters and neighbourhoods; 2) allotment gardens (AGs) are located on city-owned land, rented and administered by an association, which sublets smaller plots for individual use; and 3) community-supported agriculture (CSA) are institutions where members pay a yearly fee and might even engage in farm labour in exchange for regular produce deliveries from farmers (Hashimoto et al., 2019; Savarese et al., 2020). In Switzerland, around 10800 people are fed by CSA farmed produce in 2015 (Volz et al., 2016), whereas allotment gardens have around 20000 members (Familiengärtner-Verband, 2023). There are no official numbers for CGs in Switzerland. Additionally, the

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precise impact of these CAP institutions is hard to judge since members often provide produce for their family or friends. While an individual CSA, AG, or CG functions as an organisation, each CAP type (CSA, CG, AG) is considered in this paper as an institution given their distinct structure, rules, goals and resources. However, all types operate within a broader institutional framework of CAP shaped by shared social and cultural norms, such as local food production and community engagement, which define their role and continuity potential.

Overall, these institutions give their members the opportunity to grow their own produce and build social cohesion. They are also considered important leisure activities and are beneficial in leading to healthier and more sustainable lifestyles (Farmer et al., 2017). In fact, there is ample literature from many countries that highlights the significant health, social, economic, political and sustainability-related potentials of these CAP types, such as improving the life of their members and their communities, and leading to socioeconomic change (Bendt et al., 2013; Drescher et al., 2006; Gerodetti and Foster, 2015; Medici et al., 2021; Okvat and Zautra, 2011). Additionally, some literature focuses on describing the origins and establishment of each of these CAP types (Acton, 2011; Ghose and Pettygrove, 2014; Ostrom, 2007), while other studies examine prosumers' motivations to engage in CAP (Brehm and Eisenhauer, 2008; Kingsley et al., 2019; Kirby et al., 2021; Veen et al., 2020; Winkler et al., 2019).

However, these diverse CAP types have not been explicitly compared in terms of their institutional structures, such as rules, requirements, hierarchies and organisational aspects that can be found in every CAP type. Literature has primarily focused on comparisons between singular organisations of one CAP type (Göttl and Penker, 2020; Jacob and Rocha, 2021; Lass et al., 2003; Ponižy et al., 2021). An understanding of the differences and similarities between the three CAP types in terms of institutional structures and their respective functionalities and outcomes on individuals and societies is lacking. Such a comparison can help determine how the different structures of the CAP types gain legitimacy as institutions and in turn influence their expansion and continuity potential.

Thus, we aim to compare the three CAP types (CSAs, CGs and AGs) in Switzerland in terms of their institutional structures. We follow institutional theory to compare their respective organisation, structures and rulesets and how these can act as barriers or facilitators for their continuity. Additionally, we explore their perceived outcomes for individuals and society. We collect data inductively using a Grounded Theory-driven qualitative approach based on interviews and participant observation from multiple sites in the German-speaking part of Switzerland. Our findings show that institutional theory provides a suitable framework to categorise the institutional structures of the three CAP types and show their (in)ability to align with broader institutional pressures (e.g., social and communal expectations) shaping their continuity potential as agricultural prosumption institutions. On one hand, this framework uncovers how the different CAP types exist nowadays in societies. On the other hand, it determines how the structures, rules, norms and beliefs of the investigated CAP types shape their ability to address internal as well as external challenges and influence their continuity potential.

2. Background and aims

2.1. Overview of the CAP types in Switzerland

Historically, gardening was an informal, subsistence-based activity, which has become increasingly organised during the industrialisation, for example due to the loss of access to gardening space for the increasing urban population (Acton, 2011). Nowadays there exist three main types of CAP institutions that are important for building a long-term sustainable food system and fostering a communal responsibility for food production and consumption. Ensuring their continuity contributes to providing a reliable source for locally produced

food and maintaining communal stability.

Firstly, AGs are one of the CAPs which are closest to private agricultural prosumption (e.g., home gardens). AGs are usually city-owned spaces given to associations to organise their use as allotments. The associations then split up the area into individual allotments and hand them to their members on a lease with specific rules on what they can grow (Acton, 2011). Research shows that AGs provide health and social benefits such as reduced stress and increased social contact (Van den Berg et al., 2010; Wood et al., 2016). However, AGs existence nowadays is threatened by urban densification. The areas that AGs occupy (e.g., close to the train tracks) are becoming more suitable and attractive for construction which threatens their existence (Jahl et al., 2022). Another problem that AGs face for their continuity is that their plots are usually fenced off and restricted to members only, which limits their ability to provide communities with access to greenspaces (Speak et al., 2015). Interestingly, most known rules of AGs focus primarily on members' social conduct and the types of produce and plants that are allowed to be cultivated (Breuste, 2010; McVey et al., 2018). There is little literature on how AGs' structures can facilitate or hinder their continuity.

Secondly, there are two community-focused CAP types: CG and CSA. Glover et al. (2007) define CGs as '*organized initiative(s) whereby sections of land are used to produce food or flowers in an urban environment for the personal or collective benefit of their members who, by virtue of their participation, share certain resources such as space, tools and water*' (Glover et al., 2007, p.79). These initiatives can be organized through a communal association, NGOs or governmental organisations (Göttl and Penker, 2020, p. 33). In CGs, members can either manage and cultivate the garden together or adopt an allotment-style approach with individual raised beds or small plots. However, in contrast to AGs, CGs still tend to manage these semi-private plots collectively relying on shared knowledge, tools, material and labour. Extensive literature shows the benefits of CGs in helping their members interact with each other and integrating themselves within a community or neighbourhood (Christensen et al., 2018; Porter and McIlvaine-Newsad, 2013; Scott et al., 2020; Tidball et al., 2010). Researchers also found that CGs have an impact on members' knowledge of science, nutrition, gardening and the environment, which motivates many educational organisations (e.g., schools) to have CGs of their own (Corkery, 2015; Krasny and Doyle, 2002). However, their continuity is heavily reliant on the support and interest of their neighbourhoods.

For CSA, a community-focused type, its core principle is the democratic and cooperative relationship between farmers and its members, who share work responsibilities or financial burden (Medici et al., 2021). A CSA membership entails a subscription service for food grown with the help of professionals and delivered to the members. The food delivered encompasses a wide range of food products from fruits and vegetables to eggs and meat (Volz et al., 2016). Most CSAs follow organic rulesets in their food production, enabling positive health and environmental impacts (Volz et al., 2016). Literature further highlights positively the economic value (Bazzani and Canavari, 2013), transformative characteristics (Brehm and Eisenhauer, 2008; Wells et al., 1999) and political role of CSAs (Degens and Lapschieß, 2023; Sharp et al., 2002). However, there are many differences in the regulatory aspects between the existing CSAs such as in their membership rulesets (e.g., labour requirement from none to up to 18 h per year) and characteristics of CSAs. Therefore, general assumptions and understanding of their rules are very rare (Volz et al., 2016) but they remain similar in their goals and social norms (e.g., solidarity towards farmers, high quality produce and communal risk distribution).

Overall, the three CAP institutions share the same idea – the communal production of food – but they are different in their institutional goals and rules related to this food production, with even more variation in how they are organised. Knowledge of what their rules and requirements beyond food production are, is lacking. Understanding their institutional structures is crucial for assessing their impact on

continuity.

2.2. Institutional perspectives on CAP

Institutional theory examines how rules, norms, and structures shape social, economic, and political behavior. It explains why organisations and individuals conform to established frameworks, how institutions evolve and how they influence long-term societal transformations. Institutions can be formal (laws, policies, regulations) or informal (customs, cultural norms, collective beliefs) and they provide stability and predictability to human interactions (North, 1990; Scott, 2005). In sustainability science, institutional theory helps explain the persistence of unsustainable practices and the challenges of transitioning to alternative systems, such as sustainable and equitable food systems. It highlights how institutions enable or constrain change, whether through policy frameworks, market mechanisms, or social norms (Ostrom, 1990; Young, 2002).

Through institutional theory we are able to categorise the structures, norms and rules of each CAP type and explain how it exist in its current form and how these structures influence the CAP institutions' behaviour, adaptability and thus its continuity. In this paper, institutional theory provides a framework to analyse how CAP institutions adapt to challenges, and navigate isomorphic pressures (Powell and DiMaggio, 2012). In order to survive, the CAP institutions need to meet specific institutional expectations, which are not related to their (economic) performance, but rather characterised by social norms and cultural specificities. These institutional expectations lead to the adoption of "templates for organising" (Powell and DiMaggio, 2012), socially accepted forms of organising, and to the process of "isomorphism", where similar institutions take up similar organisational forms in order to meet these institutional expectations (Powell and DiMaggio, 2012). Normative isomorphism for example arises from professionalisation of knowledge and shared values, leading institutions to adopt similar structures based on sector-wide expectations, while mimetic isomorphism occurs when institutions or even singular organisations are facing uncertainty imitate established models perceived as successful (Powell and DiMaggio, 2012).

Interestingly, Scott (Scott, 1995, p. 59) identifies a regulative, a normative, and a cultural-cognitive pillars as a base of every institution. These pillars define if rules, norms or common belief systems are the main influence on institutional behaviour, structure and continuity. While his concept is regarded as one of the classic works within institutional theory, it is paramount to acknowledge that institutional structures are not static, but rather influenced through ongoing interactions between formal rules and informal practices (Greenwood et al., 2017).

To understand the continuity potential of institutions, it is important to analyse their ability to adapt their structures in response to external challenges or internal dynamics (Greenwood and Hinings, 1996). Battilana and Lee (2014) found that hybrid institutions, which are understood as social enterprises incorporating economic or environmental aspects, face continuity challenges as they often do not fit the established expectations for regular institutions (Ruef and Patterson, 2009; Zuckerman, 1999). Similarly, CAP institutions are hybrid and they need to find different ways to gain the approval of certain actors who could give them access to important resources (Kraatz and Block, 2008). In addition to these external struggles, these institutions face internal challenges which threaten their continuity, such as the creation of a common identity and finding a balanced path between social and economic interests in everyday business as well as in the long term (Battilana and Lee, 2014). Furthermore, literature shows that an organisation flexibility and hierarchical systems (Battilana and Lee, 2014), networks (Powell and DiMaggio, 2012), resources and even formal and informal rules (Battilana and Lee, 2014; Greenwood et al., 2017) can help address the external and internal challenges which impact their continuity. These findings imply that understanding the hybrid structure

of CAP institutions is paramount to understand their potential for continuity.

All in all, institutional theory can be adapted to specific contexts and questions within diverse organisational settings. It helps to gain insights into how institutional structure supports organisations in adapting to external and internal challenges. It has been prominently applied to investigate how regulations influence the organisation of industries (Peters, 2019), shape structures in educational institutions (Cummings, 2003) and in collaborations between non-profits and governmental bodies (Mintzberg, 1989). Within the topic of agricultural prosumption, this theory has not been operationalised before, although an institutional perspective can be relevant, especially in understanding the rural areas which are characterised by enduring agricultural structures (e.g., historic land use patterns, traditional agricultural practices, well-established governance systems). However, they can still struggle to adapt to economic or political challenges (Atia et al., 2023; Battilana and Lee, 2014; Mesek et al., 2024) and are often highly dependent on a network of linked organisations for resource access and visibility (Bonfert, 2022b; Powell and DiMaggio, 2012). Institutional theory showcases these issues when analysing a rural or urban CAP organisation and helps to understand the problems and struggles CAP faces and how institutional structure impacts an organisation's continuity potential.

2.3. Research objectives

It is unclear what the rules, requirements and structures are within each CAP type. With the present study, we want to identify, understand and compare the institutional structures of the most common Swiss CAP types (i.e., CSAs, AGs and CGs) and to discuss the problems and opportunities for their continuity. More specifically, we examine the following questions.

- What are the key institutional structures of the three CAP types and how do they differ from each other?
- How do the institutional structures of the three CAP types impact their ability to adapt to internal and external challenges?

Our first objective was to identify and compare the norms, rulesets, socio-political agenda, as well as the perceived outcomes of the three CAP types, which we consider as institutions. Examining how their institutional structures shape membership requirements, engagement, the decision-making processes and other institutional aspects, allows us to analyse how they exist in their current form and which structures act as barriers or facilitators to the uptake and the continuity of every CAP type. Our last objective was to give recommendations to improve the continuity potential and resilience of CAP institutions in Switzerland. Solidifying the position of CAP in our society has positive implications for ensuring food security and fostering a more sustainable mindset towards food production and consumption in adjacent communities and societies.

3. Methods

3.1. General approach

We chose a qualitative approach to address our research questions to ensure a contextualised understanding of the different agricultural prosumption types in Switzerland. We relied on Grounded Theory (GT) (Glaser and Strauss, 1967) since it allows examining a new social phenomenon both systematically and thoroughly. Another advantage of GT was that it allowed us to derive new theories about the phenomenon in question inductively (Strauss in Legewie and Schervier-Legewie, 2004, p. 58). Therefore, we employed GT to first identify the key elements of the different agricultural prosumption types in Switzerland, and second, to categorise the relationships between the found elements based on the

context and processes of the CAP types. Based on Strauss's (Strauss in Legewie and Schervier-Legewie, 2004) GT approach, we focused on theoretical sampling, theoretical coding and comparisons (Strauss in Legewie and Schervier-Legewie, 2004, p. 59).

3.2. Sampling and data collection

Theoretical sampling refers to choosing data sources based on the theory and the elements that emerge after each round of fieldwork, preliminary analysis of data and theoretical reflection (Legewie and Schervier-Legewie, 2004, p. 59). First, we selected the CAP sites to visit based on the aims of the study. We examined the main features (e.g., organisational characteristics, administration requirements, relationships and interactions between members) of the CAP type. After the first two field visits, we evaluated our initial data (i.e., observations and informal conversations) and found relevant elements of CAP emerging such as organisation size (small, medium and large) and location (urban, semi-urban and rural). Following these elements, we then chose our subsequent sites to visit. We repeated the process of evaluation for every filed visit and adjusted the sampling accordingly. This technique enabled us to examine the complexity of the CAP types while accounting for spatial and establishment differences of the CAP organisations. Our final sample consisted of eight organisations under the CAP institutions. More specifically, there were two CGs, four CSAs and two AGs from the German-speaking part of Switzerland (cf. Table 1).

We primarily conducted semi-structured, open-ended interviews with presidents or members of the organisational committees of CSAs, CGs and AGs, as they would provide us with accurate information on their organisational structure, membership requirements and rules. The interviews started with general questions about the organisation, such as its history or size, in order to start a conversation. We made sure to include the following topics, in case they were not raised naturally: the internal structure of the organisation, the membership requirements, the rules of gardening and continuity difficulties faced by the organisation. To ensure comparability of the results between the three types of agricultural prosumption, we examined the same aspects of interest in terms

Table 1
Main characteristics of the investigated CAP types.

CAP organisations	Main characteristics	Approximate number of members	Number of in-depth interviews (IDI) and participatory observations (PO)
AG1	Large, traditional, historically grown, fenced off plots	2100 members, distributed between multiple sites in the city	3 IDI
AG2	Midsized, plots without fences, relatively new	1800 members, distributed between multiple sites in the city	3 IDI
CG1	Focus on neighbourhood improvement, community led	60 members	1 PO, 3 IDI
CG2	Focus on integration, backed by church-organisation	30 members	1 PO, 3 IDI
CSA1	Urban, well established, successful, large	400 members	2 PO, 3 IDI
CSA2	Semi-urban, well established, successful, large, old	400 members	1 PO, 3 IDI
CSA3	Rural, well-established, midsized	180 members	1 PO, 3 IDI
CSA4	Rural, new, small	80 members	1 PO, 2 IDI

of structure and perceived outcome with the interviews. To avoid confusion, well-known terms like 'gardening' were used in the interviews instead of 'agricultural prosumption'.

In addition, we complemented the interviews with participant observations (Aktinson and Hammersley, 1998) at CSAs and CGs, including informal conversations with the members on site. During the first author's observations at CGs and CSAs, he participated in the organisations' workdays and members' assignments. He observed the way the work tasks were explained, distributed and carried out, how knowledge was transmitted from experts to newcomers and how communal aspects came into play. Observations were noted through field notes and voice memos and then completed in observation reports. As for AGs, we did not conduct participatory observation because the spatial separation of plots and different gardening times made it difficult to observe any interactions within AGs.

The first author carried out all the interviews and observations. The role of the researcher was openly communicated and oral consent was given by all participants. The impact of the researcher's presence on prosumers' behaviours was minimised through participating in the gardening work. To limit biased interpretation of the data, the researcher reflected on his attitudes and thought processes on a regular basis through three main techniques (Breuer, 2009). A research diary was maintained through the entire research process, in order to document reflections on the data. Retrospective self-confrontation and reflexion was used to identify personal biases and assumptions. Lastly, regular discussion with colleagues and co-authors provided external feedback to foster critical insight into the data interpretations.

First, we investigated CGs. We chose CG1 for its aim of improving the local neighbourhood community. We then chose another CG with a different objective to obtain a bigger scope of the existing CGs in Switzerland. Therefore, we selected CG2 that focused on integrating refugee women into Swiss society. At both CGs, we participated in a full workday and conducted an in-depth interview with the organiser, as well as informal conversations with three members. Both CGs were situated in midsized Swiss cities (cf. Table 1).

Second, we examined CSAs in both urban and rural settings. We participated in two initial work assignments in two urban (CSA1, CSA2), large (around 400 members) and well-established CSAs. We visited CSA1 first, which is located close to a thriving quarter with many projects, schools, retirement homes and new residential buildings. Additionally, to evaluate the possible influence of geographical location, we visited CSA2, one of the oldest CSAs in Switzerland, situated on the edge of a large city's suburb and reachable by public transport. As for the rural setting, we visited two CSAs situated between two midsized cities and held interviews with leading figures, such as the presidents as well as board members and involved farmers. CSA3 is well-established, accessible by car and had roughly 120 members, while CSA4 is newly founded in a rural area surrounded by small villages. In addition to the informal conversations, we held interviews with three members of each CSA, except CSA 4 where only two members were present due to external circumstances (cf. Table 1).

Lastly, for AGs, we started by interviewing two AG presidents from different city-wide allotments gardens. We interviewed the president of AG1 which is a large traditional Swiss allotment garden in a midsized city (2600 members in 12 locations). It displays individual, clearly separated and mostly fenced-off plots. Given that some AGs have no fences between the plots, we decided to conduct a second interview with the president of AG2, which a less traditional and smaller AG in a second mid-sized city (1100 members in 17 locations). This AG has low paths separating the allotments and is open to the public and contains communal areas. We then conducted four additional interviews with members of AG1 and AG2. In total we interviewed six AG members (cf. Table 1). All of them possessed extensive experience in managing AGs and gave insights into other AGs' structures.

Overall, we note that within the sample we had, we covered all elements of the major themes relevant to the purpose of our present study

and no new elements emerged, indicating that we reached saturation with our data regarding the rules and structures of the CAP. Table 1 summarises the basic characteristics of the three examined CAP types and includes information on the respective data collection methods.

3.3. Data analysis

Our data consists of transcripts of audio recordings, field notes, vocal memos and observation reports. We used MAXQDA (VERBI, 2022) to code, visualise and compare the data collected from the observations and interviews. In accordance with our GT approach, we achieved theoretical coding through open, axial and selective coding.

During open coding, we identified major concepts and compared the similarities and differences among the investigated CAP types (Strauss et al., 1996, p. 54f). Subsequently, during the axial coding, we connected the already developed concepts and built categories and sub-categories given their contexts (Strauss et al., 1996, p. 76). Lastly, in the selective coding, we built two key categories (i.e., “barriers and facilitators” and “perceived outcomes”) within our theoretical framework, after identifying the relationships between the different categories (Strauss et al., 1996, p. 95).

4. Empirical results and key findings

“Barriers and facilitators” category (cf. Table 2) refers to factors related to the structures and requirements of the CAP institutions. These factors are identified on the individual, institutional and socio-political level. At each level, the factors can act as either a barrier or a facilitator of continuity of the CAP institution, depending on the context, the CAP type or even the personal preferences of individual members. The second key category is “perceived outcomes” (cf. Table 3), which refers to the impacts of the CAP type’s structure on the individual and social levels.

4.1. Barriers and facilitators

4.1.1. Individual level

On the individual level, we identified membership requirements which can act either as a facilitator or a barrier for the CAP continuity, since ensuring a stable membership is vital for every institution type (cf. Table 2). Within these, there are strict requirements which have to be met by interested actors to join an institution such as membership costs, knowledge, time and workload.

For the AGs and CGs we examined, the membership fees are low and active members can produce food for the invested money (rent and membership cost range from 100 to 300 Swiss francs per year). AG2’s president stated that particularly migrants benefit from AGs in putting food ‘on the plate’ for themselves and their extended family. In CSAs, the cost factor can act as a barrier. CSA memberships consist of one or more share certificates (around 250 Swiss francs each) and a subscription fee for different sizes of produce shipments, averaging around 800 Swiss francs a year. We found that all CSAs in the sample indicate that the costs deter some people from joining and often restrict CSA membership to financially well-situated families. Nevertheless, we observed that all CSAs try to tackle these issues. ‘We want solidarity also in the price – we support low-income earners with funds’ (Founder of CSA4). These funds are raised through higher voluntary fees for high-income earners. CSAs also require low time commitments and workloads (around 18–20 h per year), unlike AGs and CGs, which are time-consuming, as one has to take care of the cultivated plots nearly every day, as a member of AG2 told us. While specific workloads in CSAs are part of the membership contract, the time spent in AGs and CGs is not regulated formally. AGs rather regulate workloads through the visual expectations they have for individual allotments, often fixed within the membership contract and controlled by the organisational board. The CGs we visited do not have such contracts but rely on social coherence for upholding their norms and rules. The different time and workload requirements can therefore act as a barrier, due to potential time constraints, but also as facilitators, by creating a regular activity for their members. The last requirement for joining a CAP activity is knowledge. We observed that prosumers need the least knowledge in CSAs, while more specific knowledge is needed to be successful in CGs and AGs.

4.1.2. Institutional level

On the institutional level, the CAP types have different institutional characteristics, regulations and structures (cf. Table 2). The first factor we identified is the location of the organisation and the available public transport around it, which we refer to as geographic accessibility. The AGs and CGs we visited are located in urban to semi-urban spaces making them easily accessible, which is paramount since both types require regular care. Since CSAs are managed by professionals, their members experience flexible workdays in which they sign up for specific work assignments. This system enables CSAs to function in rural areas with limited accessibility. Nevertheless, some CSAs also operate in urban areas, which allows for more community interaction and shorter supply chains. CSA1, for example, was adjacent to large living quarters

Table 2
Barriers and Facilitators to the continuity of the different types of CAP on the individual, institutional and socio-political levels.

	Factors	AGs	CGs	CSAs	Relevant for all
Individual Level	Membership requirements (cost/time/workload/knowledge requirements)	Mid-cost/high time/high workload/high knowledge	Low-cost/high-time/mid workload/mid knowledge	High-cost/low-time/low workload/no knowledge	General interest in gardening and community
Institutional Level	Accessibility and Visibility	Easy access within city	Easy access within neighbourhood/info signs/inviting	Easy access within region/online visibility	Prosumers need to know of organisation and how to join
	Organisation	Traditional/closed/inflexible rules	Community-centred/flexible rules/mostly democratic	Flexible/transparent/fully democratic/professionally organised garden	Administration done by members on voluntary basis
	Hierarchy	Highly hierarchical/(experience-based)	Flat (skill- and position-based)	Flat (skill- and motivation-based)	
	Rules	Formal for gardening and social context	Mostly informal rulesets	Formal for organisational/informal for social contexts	Formal rules can be sanctioned by organisation.
	Monitoring (Gardening/social)	Social monitoring	No strict monitoring	Professional monitoring	
	Labour (Division/sourcing of talents)	No division/no sourcing of talents	Low division/some sourcing of talents	High division/extensive sourcing of talents	
	Inter-institutional networking	Country-wide network – only organisational	Well-embedded locally and through NGO	Well-connected to other CSAs and similar institutions, often city administration	
Socio-political Level	Socio political factors (Tradition/political agenda)	Highly traditional/no political agenda	Not traditional/communal local political agenda	Not traditional/global and local political agenda	

Table 3
Perceived Outcomes of the structures of the CAP types on the individual and societal levels.

	Factors	AGs	CGs	CSAs	Relevant for all
Individual Level	Knowledge and Competence (learning effects)	individual learning	group learning and mentoring/social competence	mandatory mentoring/group and individual learning encouraged/agricultural change	Gardening, ecology, biodiversity, technologies and resourcefulness
	Promoting sustainability and healthy lifestyle	Not institutionalised	Partly institutionalised	Highly institutionalised	All give individual chance to become more sustainable and healthier
Societal Level	Chance for self-expression	Highly institutionalised	Partly institutionalised	Little institutionalised	The more individual focus, the higher the self-expression
	Building Community	Spontaneous, local, in-groups or "clans" formation Generational change	Local, mixed groups, impacting neighbourhood	Strong, local, mixed, but also on a global scale	Community building through sharing food

and was able to deliver their produce to pick up stations by cargo bikes. CSA3 was situated between two cities without a good connection to public transport. Members only came together regularly for workdays and did not use the CSA as a community space. The members were aware of this disadvantage and were trying to find a space closer to the city. In all three types we observed that easy access was valued by the members, who could then spend more time in the garden or with the community.

Visibility is also important for an organisation to find new members. It is closely linked to the geographic accessibility, but also refers to social aspects that ease access to such institutions. CGs are highly visible within their neighbourhoods. We experienced CGs to be open, welcoming and communicative, especially with potential new members through providing informational boards and being easily approachable for questions. Both CGs we visited had multiple informational boards and members expressed that they regularly interact with interested pedestrians passing by: *'There are many conversations over the garden fence'* (CG1). The CSAs we looked at are also highly visible but often rely on digital marketing strategies such as social media and well-developed and appealing websites, created and managed by professional IT personnel, as in CSA1. However, the fenced-off AGs we visited lacked the openness of CGs' and CSAs' advertisement schemes. They had outdated websites focused on the needs of their existing members as the president of AG2 informed us: *'We get the base structure [of the website] from the federation, but we have to fill it ourselves [...] that is [the website] not as important for us so far, it works, so it should be okay'*.

The organisational structure of a CAP (i.e., how the CAP types are organised) is the third factor identified, and it differs between the three types as they have varying structures and hierarchies. CSAs are transparent, flexible and democratic. Regular members vote on important issues at a yearly assembly and those elected to be in the leadership make everyday decisions. This generates a flat hierarchy. Hierarchies in the investigated CSAs are structured through the organisation and are based on the various available skills (gardening, organisational, technological, etc.) and motivational levels making them highly flexible. At the work assignment in CSA1, the person who should explain what to do was late, therefore the member with the most experience took over to delegate what to do, portraying a flexible hierarchy based on experience. CGs share some of the organisational aspects of CSAs (e.g., democratic assemblies and leading administrative figures) but differ from their economic requirements since CGs are not required to generate a profit. Participation in organisational progress is possible for every member and most decisions are made democratically, although the leadership will make some decisions on their own, as the leader of CG2 informed us. Hierarchies are flat and based on gardening skills. AG leadership, although democratically elected, often consists of retired persons, senior citizens or older long-time members. Through our interviews we found out that the tendency for older administrators is mainly due to the time demands of these positions, and possibly routed in the shared cultural values within this age group. The president of AG2 admitted that the managing committee is not always *'ideally staffed'*, because for example they lack IT skills or are even prejudiced towards

minority groups. A member of the organisational board in AG1 told us *'Getting new people in it is always difficult, we ask around every year, and include information in our newsletter which jobs are open, but there are nearly no replies. You have to be happy to get someone to look over the books, which are two nights per year – no one wants to offer up their free time anymore [...]'*. New members can hardly get involved in these processes or change the structure of the organisation mostly due to the time constraints. AGs have therefore an inflexible, steep hierarchy, which is mostly based on experience or membership duration.

The fourth factor, institutional monitoring, can be found in all three types. AGs have restrictions on gardening and often govern the social aspects of their members through rules. For example, the *"Mittagsruhe"* (a noise restriction during noon) or guidelines for the tidiness of allotment are part of the official regulations. These restrictions are controlled by a specific member of the executive board who walks through the allotment and can talk to the deviant gardener or even issue citations. If gardeners follow the rulesets, they can garden to their liking, regardless of the agreement or disagreement of their neighbours, as we have heard in AG1: *'The overseer can try and talk to the guy to be neater, sometimes it works, sometimes not'*. In CSAs, we observed that the professionals monitored every produce-related activity the other members did. In addition, they gave out specific orders on how the work must be carried out. One professional in CSA2 even stated, *'Trust is good, monitoring is better'*. In CGs, we had not observed such close monitoring, neither through peer-to-peer, nor through the experts. The members had the possibility to ask for help but were free to experiment for example with the choice of crops or different cultivation methods. CGs often attract gardeners who express themselves freely, creatively and individualistically. A female, long-time member of CG2 expressed herself creatively in her plot by expanding her raised bed and repurposing old plastic bags as pots, to the dislike of the other members who saw her plot as a mess. Since there were no rules against her behaviour, she carried on her style of gardening without hesitation. This self-expression could also be seen in AGs but was not tolerated in CSAs due to the importance of every work step for a successful harvest.

The fifth institutional factor we found was labour-related. The CSAs in our sample employed two main measures to ensure good working conditions. First, they had a high division of labour, lightning the workload for the members and encouraging them to partake in social activities (e.g., communal lunches, on-farm meetups). Second, this division was based on the available skills to profit from every member's specific talent. A pensioner in CSA2, with extensive knowledge of fruit-bearing trees, spends all his required work hours and some voluntary ones, pruning and cultivating the CSA's trees. Although CGs also tried to source their talents, they had a low division of labour and were not as successful as CSAs. At AGs, there is nearly no institutionalised division of labour or talent sourcing. Therefore, members needed to complete their work on their own or organise help for themselves, similar to the president of AG1 who has *'some close friends who take care of my garden while I am away'*.

The sixth factor is the differences on the inter-institutional networks

of the CAP types. The investigated CSAs were well-connected to other CSAs and to like-minded institutions and even city administrators. At an organisational meeting of CSA1, the importance of such networks became apparent as the city administration handed over a new patch of land to CSA1 to turn into farmland. The visited CGs were well-established within their quarters and could rely on their organisational bodies, which are NGOs or the church. We also found that CGs try to stay connected. For example, CG1 regularly visited other CGs in Switzerland to connect, get new perspectives and best learn practice approaches: *'Every year we have an excursion [...] to see how other [gardens] do it and how they solve problems'* (CG1). AGs rarely have local agricultural prosumption-related networks. Instead, they are found to be organised through the national organisation, which they rely mostly upon for organisational assistance (e.g., membership contracts, administrative help). The president of AG2 admitted that *'it is already hard to find volunteers for the work [at the organisation], it is even harder to find people who do networking'*.

4.1.3. Socio-political level

On the socio-political level (cf. Table 2), we categorised the three CAP types on a scale between traditional and non-traditional institutions. The AGs in our sample are traditional in their institutional structure with their main purpose being to grow vegetables and flowers. Accordingly, plots or membership in an AG are often passed on within the family, as was the case for the president of AG1. In comparison, we observed that in CGs and CSAs, politics play a large role. CG1 and CG2 are linked with a local political agenda, aiming to improve a neighbourhood or foster refugees' integration within a community respectively. CSA members are rather engaged in a more global political agenda focusing on agricultural change, urban food sovereignty and sustainable transformation. This engagement became apparent when we found stickers, leaflets and other informational material regarding agricultural change and just transition in CSA1 and CSA2. In addition, these CSAs offer regular talks or presentations regarding these topics and use their premises for cultural events, which are open to members and the public. We also observed that prosumers in CSAs were often highly educated, left-leaning and ecologically conscious individuals, which was reflected in the institution's agendas. It was, however, unclear whether the members' characteristics presupposes the political agenda of the CSA or vice versa.

4.2. Perceived outcomes

4.2.1. Individual level

One individual perceived outcome found in every activity is the high level of knowledge and competence (cf. Table 3). The prosumers we talked to are knowledgeable with gardening, ecology, biodiversity, resourcefulness and the usage of technologies (mainly in CSAs) but also in regards to their social skills. A striking example of this was the president of AG1 who over the years had collected extensive knowledge on how to build up a functioning ecosystem within his allotment to reduce the use of pesticides though beneficial organisms. An experienced member of CG2, who helps with supervising newcomers, informed us that she had learned all her knowledge within the organisation. In addition, we have met multiple members of CSAs who had no connection to agriculture or gardening and are now able to tend to a full balcony garden as well. The differences among the CAP types can be found in the way the institutions pass down knowledge. Although all AG locations we visited offer courses on specific topics, five out of six interviewees noted that members do not to access this help. The interviewees told us that most members use the internet and gardening books to educate themselves, if necessary. In CGs, we have observed that highly experienced members will support newcomers, thus lowering the knowledge requirements and emphasising community interactions and teachings. For example, in CG2, an older Swiss lady taught Somalian women her gardening techniques. At CSAs, we observed how members

got an accurate explanation of every task before they started their work. They encouraged self-teaching and group learning activities through regular talks, courses, openly accessible bookshelves and informative websites. A characteristic of CSAs is the transmission of knowledge through a snowball-like system, where the professionals taught the regular members, who in turn could educate newer members. We have also seen this type of teaching in CGs, but all visited CSAs have institutionalised these systems. In addition, we observed that CSAs were raising awareness about moving away from large-scale agriculture towards sustainable, small-scale and community-driven systems through their pamphlets, thematic presentations and cultural events.

All the interviewees stressed the impact of their engagement in agricultural prosumption on the sustainability of their lives. A young mother of two children in CSA2, for example, mentioned that she joined the organisation to gain access to regional, organic vegetables to live a more healthy and sustainable life. The leader of CG1, said: *'[Gardening] is also about health, psychological and physical, you spend a lot of time outdoors, you move and have more contact to others'*. The president of AG1 also stated that he regularly *'recognises how much better your own vegetables are compared to the grocery shops or large-scale farmers'*. We noticed this positive evaluation of the self-grown produce even when vegetables were damaged or oddly shaped, particularly in CSAs, and even when pesticides and fertilisers were used, as is the case in some AGs. CSA and CG members indicated that they try to increase resource efficiency for example by repurposing one-use plastics.

Self-expression is another important perceived outcome highlighted by the interviewees. While the institutional structure of CSAs enables self-organised projects (e.g., beekeeping in CSA2), AGs and CGs with individual plots allowed their members to express themselves directly and creatively through their gardening. They could choose what to plant, customise their plots and find their own gardening practices. Multiple members of CG2 expressed their enjoyment of having their own raised bed where they could focus on the aesthetics of their gardens, select crops to cultivate and even grow crops from their countries of origin (CG2). This self-expression was only limited by the varying levels of regulation of each organisation. The president of AG2 stated, *'Some only want to plant vegetables, but flowers need to be done as well [...] sometimes we [the administrators] need to fight for it to look a little more friendly from the outside, that has to be a part of it.'* She stressed that their members are free to choose how and what to grow, as long as it is within their rulesets of having a percentage of flowers to keep up a friendly appearance in the city.

4.2.2. Societal level

Community building was one important societal perceived outcome. AGs produce spontaneous communities often based on established connections between members. Groups consisting of mostly homogenous members are formed, for example concerning their ethnicity and age. *'They [the members] have a lot of contact between each other, we can say the Italians for example, or the Portuguese have more contact within their groups [...] this did not start in the allotment, but because they know each other, and can talk to each other in their language'* (President AG2). A similar experience was mentioned by AG1: *'There are these clans, with maybe 4 or 5 allotments close to each other, on one occasion they sit in one garden, then in another and so on, that is a nice thing, the social part exists here'*. This phenomenon was also present in the other AG locations. CGs aim to expand their network outside the institution by improving the local community where the groups mirror the characteristics of the neighbourhood. CSAs manage to establish a strong community locally and nationally by working together and sharing experiences. The members of these communities are very homogenous throughout the different organisations regarding their political stances and attitudes towards food and sustainability. One similar way of building a community we observed is the sharing of food. For example, African specificities are shared at CG2 and fresh produce is shared at lunch break with other workers at CSA2.

5. Discussion

In the present study, we aimed to determine and compare the institutional structures and perceived outcomes for the three CAP types (i.e., CSAs, AGs and CGs) to explore their ability to adapt to challenges and understand how their structures impact their continuity. The data shows that all three types have positive perceived implications for community building and promoting sustainable and healthy living, which is in line with literature (Alaimo et al., 2008; Amsden and McEntee, 2011; Lake et al., 2012). However, the comparison revealed that these agricultural prosumption types, despite having the same goal of producing food for their members' own consumption, differ greatly within their individual requirements, institutional structures and political agendas. These differences are rooted in each CAP type's purpose, main function and expectation. They highlight how the types' organisational adaptability and institutional resilience respond to internal and external challenges (Greenwood and Hinings, 1996).

AGs are characterised by well-regulated frameworks regulating the usage of the allotment and members' social conduct, and can be considered a regulative institution (Scott, 2013). Results show that these rules are sanctioned through official channels and are enforced through internal processes or, in certain cases, by external actors such as city authorities. The implementation of the rules is rooted in AGs' historical background as an administrative top-down response to offer green-spaces to the urban working class. The longevity of this type coupled with coercive isomorphic pressure has reinforced the formalised rulesets, reflecting their legacy as 19th century public welfare projects (Acton, 2011). While these frameworks establish stability and structure in AGs, they introduce certain limitations. Fixed rulesets, as well as the high knowledge and workload requirements inhibit the ability of AGs to react to change (Palthe, 2014). Nevertheless, the high level of self-expression and individual gardening practices within AGs enhance the individual's engagement, thus fostering continuity. Because of this individuality and without adherence to specific cultural norms, AGs could be places for the integration of migrants and disadvantaged groups, enabling them to grow food, to support their livelihood and stay connected to their cultural origin. However, the institutional focus can also lead to the formation of "clans" or language-based groups instead of an inclusive community. AGs' lack of an embedded, larger political agenda within their rulesets, limits their ability to adapt to wider community needs and advocate their role in society. Without a collective political voice, AGs may struggle to find external political support, impacting their visibility, resilience and long-term continuity. AGs rigidity is fortified through the isomorphic pressure and history, reflected in their organisational similarity to other structured civic foundations such as sport clubs. This emphasises their inflexible, regulated institutional structure which creates barriers for younger members who struggle to get access to the administrative roles. The hierarchical structures further impact AGs' adaptability in the quickly evolving urban context.

CGs tend to be primarily a normative institution. Their ruleset relies heavily on normative principles and values enforced through meeting expectations of other members. Social pressure is used to achieve the appropriate behaviour of members, which is in line with a normatively legitimate institution (Scott, 1995, p. 64). The normative structure leads to a more flexible hierarchy and open structure of organisation, especially in comparison to AGs, making it easier for members to influence decisions and adapt to changing group dynamics. Furthermore, the low financial, time and knowledge requirements, paired with their high accessibility and visibility within a neighbourhood, lead to membership diversification (Göttl and Penker, 2020). The inclusive environment and high membership engagement promote their continuity. In addition, CGs exhibit an institutionalised political agenda, focused on creating local communities, which resonates with members who share similar values. While we have seen that specific agendas can differ (e.g., integration of refugees, enriching the neighbourhood), they remain a

unifying element, portrayed outside the institution as well as internally to members, for example through informational boards. The flexible organisational and institutional shape allows CGs to react and adapt to local and socio-political changes, which in turn improves their continuity.

CSAs exhibit multiple traits of cultural-cognitive institutions, such as the core values of solidarity and sustainability. Previous findings show that they are highly constitutive as they ground their rules in common beliefs of solidarity and food quality (Medici et al., 2021; Volz et al., 2016). Although CSAs have the highest financial barrier of the three types, therefore excluding certain disadvantaged groups (Cotter et al., 2017; Galt et al., 2016), their low time and knowledge requirements in combination with the snowball-teaching system make CSAs more accessible to potential prosumers. This inclusivity contributes to CSA's continuity potential, especially towards those who might face barriers in AGs and CGs. CSAs' democratic and flexible structures enhance their adaptability (Battilana and Lee, 2014). Members have multiple institutionalised processes to participate in decision-making and administration, making CSA adaptable to internal and external challenges. CSAs are also successful in rallying their members behind a common cause (Bonfert, 2022b; Nettle, 2016), thus giving them political agency and a unifying sense of purpose. Membership engagement is strengthened through these shared goals and values, which in turn reinforces the institutions' resilience. The flexibility and adaptability to challenges, paired with the high membership engagement and low time, knowledge and workload requirements enable CSAs to react quickly and efficiently to external changes or internal dynamic shifts.

Due to the threat of urban densification on green spaces available for urban agriculture (Haaland and van Den Bosch, 2015), all CAP types need to be involved in political decision-making to ensure their continuity (Hashimoto et al., 2019; Hofmann et al., 2016). Our explorative comparison reveals that the problem of continuity is specifically relevant for AGs. Jahrl et al. (2022) revealed that CGs are favoured by Swiss city planners over AGs due to the formers' smaller space requirements, higher membership potential and social cohesion possibilities. AGs thus can struggle to keep their relevance for policymakers if the space they occupy is needed and if they are judged to have fewer positive contributions to the city than their alternatives (Jahrl et al., 2022). In addition, AGs seem to lack the inter-institutional connections of CGs and CSAs. The latter are linked to different local and global institutions (e.g., city administrators, NGOs, other CAP institutions) which help them find political allies in the region to effectively communicate their potential to local governments and ensure thus their resilience and continuity (Bonfert, 2022a). Furthermore, this networking allows CSA and CG to grow following normative or mimetic isomorphism, which leads them to imitate existing successful value-driven models and their response system to challenges (Powell and DiMaggio, 2012).

Similar effects can be seen if we look at the community building within the three types. Whereas AGs establish small internal communities, CSAs and CGs establish them inside and outside the institution to different degrees. They can therefore be considered as being more inclusive and open to outsiders. It is important to examine how and if AGs could adopt some of the adaptive strategies of CGs and CSAs to react to external and internal challenges in order to ensure their continuity, whilst maintaining their characteristics and identity.

6. Limitations and future research

The present study has three important limitations. First, we investigated CAP in the German-speaking part of Switzerland. Future research should investigate whether the geographical and cultural differences between the French-, Italian- and German-speaking parts affects the continuity of CAP. Second, we examined only CAP types and excluded private agricultural prosumption activities, namely home gardening, which has gained momentum since the COVID-19 pandemic (Kingsley et al., 2022). By identifying which and why prosumers are engaging in

either home gardening or CAP, we can determine other individual or situational barriers that need to be addressed to ensure the continuity of the CAP types. Lastly, we experienced saturation within our sample in terms of identification of the rules and requirements of the three CAP types. However, our data does not allow for a comparison between the perceptions of the interviewees on aspects such as their motivations and experiences as these aspects are subjective and prone to changing from one individual to another. Future research should identify the most important motivational factors and experiences of prosumers across the different agricultural prosumption types to gain a holistic understanding of what impacts their continuity. Further consideration could also be given to the commonalities between the types, focusing on the question why these three distinct types evolved in the first place.

7. Conclusion

Our analysis shows that while all three CAP types share common goals, their different individual requirements, institutional structures and their socio-political agendas seem to impact their potential to adapt to challenges and consequently their continuity in different ways. AGs, with their fixed and regulative structures, foster individuality but limit flexibility, additionally they are at risk when they lack networks and fail to secure external political support. Whereas, CGs and CSAs, are successful in generating community engagement and involving their members within their political goals. Their democratic processes lead to a high adaptability to external and internal dynamics. Their shared political goals and values, paired with their networks enhance their resilience as well.

Our findings underscore the importance of institutional adaptability in CAP continuity. To strengthen resilience, we propose three key interventions:

First, inter-institutional CAP networks are crucial in fostering mimetic and normative isomorphism and need to be supported in their establishment and their continuous operation. This would enable an exchange of best practices, specific knowledge and institutional structures. Through mimicking specific aspects of CSAs and CGs, AGs could strengthen their societal presence and thus gain more political agency. They could then demonstrate their unique strengths more effectively such as their high potential for self-expression, their integrating capacities and low economic barriers (Speak et al., 2015).

Second, urban planning policies need to provide accessible and visible spaces for CAP as a vital part of urban green infrastructure to ensure their continuity as well as improve on their strengths such as the high community building potential of urban CSAs.

Third, policy mechanisms such as tax benefits or state-supported payments could help make CSAs more accessible to low-income households. While most CSAs try to lower membership costs for low-income earners using voluntary solidarity payments by high-income earners, these payments are not sufficient.

CRedit authorship contribution statement

Stefan Galley: Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Rita Saleh:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Patrick Bottazzi:** Writing – review & editing, Conceptualization.

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Declaration of competing interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Data availability statement

Data can be made available upon reasonable request due to data privacy and anonymity considerations of the CAP organisations.

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