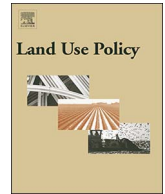




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# Is urban agriculture urban green space? A comparison of policy arrangements for urban green space and urban agriculture in Santiago de Chile

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## ABSTRACT

Urban green spaces are crucial for citizens' wellbeing. Nonetheless, many Latin American cities struggle to provide sufficient and equitable green space distribution for their citizens. By looking at the Chilean capital Santiago as an example, this paper examines whether the growing urban agriculture movement provides a feasible opportunity to increase public urban green space access. It does so by using the policy arrangement approach to analyse change and stability in two policy domains: urban green space planning and urban agriculture. The paper investigates urban green spaces and urban agriculture and the role of practitioners, urban planners and policymakers. The analysis found opportunities for urban agriculture to facilitate the expansion of urban green spaces in Santiago if policy mechanisms enable private or public spaces to be maintained by citizen organizations. Such mechanisms may, however, encounter resistance from public agencies, as it is unresolved who is involved and who benefits from urban agriculture. The paper concludes that urban agriculture is an opportunity for urban greening in Santiago, although changes are needed in how green areas are planned and conceived. Additionally, urban agriculture should not be understood as a substitute for parks but as a complementary form of green space provision with a distinctive value.

## 1. Introduction

Urban green spaces are important for sustainability and citizens' wellbeing in increasingly urbanized societies (Bolund and Hunhammar, 1999; Chiesura, 2004). These spaces vary in size, vegetation cover, environmental quality, facilities and services, and other aspects (Wolch et al., 2014). For the purpose of this research, urban green spaces are defined as public goods that allow free access and represent pockets of nature for all residents (De la Barrera et al., 2016a) and that are generally maintained by public agencies for citizens' leisure and recreation (Rojas et al., 2016). In Chile, typical green spaces include urban parks, squares or *plazas*, median strips, roadsides, sidewalks, and sometimes urban wetlands (De la Barrera et al., 2016a; Rojas et al., 2016).

Urban green spaces deliver a wide range of urban ecosystem services in all Millennium Ecosystem Assessment categories: provisioning, regulating, supporting and cultural services (Wolch et al., 2014; Kabisch, 2016). Green spaces remove pollution, attenuate noise, and cool temperatures, amongst others (Bolund and Hunhammar, 1999). In terms of cultural ecosystem services, urban green spaces provide

recreational opportunities to engage in sports, relax, or simply have an experience with nature (Chiesura, 2004). They are also important to foster social interactions, contributing to neighbours' and communities' integration (Huang, 2006; Kázmierczak, 2013). In Latin America, public spaces, including green spaces, constitute instruments to provide equity in the access to recreational amenities among citizens from different socio-economic levels, being "classless" spaces; public green space investments are ostensibly made to benefit the whole city population (Berney, 2010 in Wright-Wendel et al., 2012).

In many Latin American cities, public green spaces are scarce or inequitably distributed (Reyes-Paecke and Figueroa, 2010; Wright-Wendel et al., 2012; Krellenberg et al., 2014; De la Barrera et al., 2016a, 2016b). For instance, in Santiago de Chile, the five wealthiest municipalities have access to an average of 11 m<sup>2</sup> of public urban green space/inhabitant, while the five poorest municipalities have an average of 2 m<sup>2</sup>/inhabitant. As a reference, the World Health Organization (WHO) recommends 9 m<sup>2</sup> of unpaved green space/inhabitant (Reyes-Paecke and Figueroa, 2010). This is partially the result of explosive and precarious urbanization from the middle of the 20th century onward,

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wherein limited public budgets for green space maintenance and high competition for land use hindered the planning of extensive green spaces. The city's green space governance is characterized by fragmentation in the decision making process, little coordination among the public institutions involved (Reyes-Paecke et al., 2011), and undemanding regulations with respect to public green space provision in housing development (Valenzuela et al., 2009). Santiago is undergoing the kind of rapid urbanization attributed to megacities, which reduces valuable green spaces, including natural reserves and agricultural lands (Weiland et al., 2011). Under such pressures, it is urgent to explore alternatives to expand and improve the quantity, quality, distribution and access to urban green spaces.

Urban agriculture sites are increasingly perceived as a recreation space for urban dwellers to enjoy nature (Van Leeuwen et al., 2010). Citizens do not engage in urban agriculture only for food production but for a variety of reasons, including urban greening, neighbourhood improvement, or leisure (Rosol, 2010; Thibert, 2012; Cohen and Reynolds, 2014). Grassroots organizations are making use of UA to transform the city by reclaiming underused spaces (Thibert, 2012). They are also contributing to city beautification by converting underutilized sites into valuable green spaces (Tidball and Krasny, 2009) and providing 'green areas' where municipal parks are lacking (Schukoske, 2000). Already, some cities have adopted urban agriculture as an urban green strategy. In Montreal, Canada, and Portland, USA, community gardens are officially recognized within the cities' definition of 'Parks and Open Areas' (Schukoske, 2000). In Berlin, the 'Urban Landscape Strategy' develops green spaces under three themes: 'Beautiful City', 'Productive Landscape' and 'Urban Nature'. The 'Productive Landscape' theme connects allotments, agricultural and urban gardening spaces with interim users and space pioneers (Thierfelder and Kabisch, 2016). Integrating urban agriculture within common green spaces can be good for the design of green areas where citizens can learn about nature (Colding and Barthel, 2013) and for offering them recreational opportunities such as gardening that parks do not provide (Francis, 1987).

Previous studies emphasize urban agriculturés potential to foster social cohesion (Armstrong, 2000; Cohen and Reynolds, 2014; Saldívar-Tanaka and Krasny, 2004) and community development (Schukoske, 2000). In UA, the garden's participants come together in an activity, sharing tools, responsibilities and concerns and fostering contacts and bonds among them (Fisher et al., 2000; Francis et al., 1984; Saldívar-Tanaka and Krasny, 2004; Veen, 2015). Parks, instead, may not provide all those opportunities for community development, because people are not encouraged to jointly engage in their management (Saldívar-Tanaka and Krasny, 2004). Systems wherein citizens are active in green space management – including urban agriculture gardens – are referred to under concepts such as 'active land management' or 'community management of open space' (Schukoske, 2000; Colding and Barthel, 2013, respectively). Pearson et al. (2010) refer to this as a 'recreational continuum from passive parkland to active urban agriculture'.

In recent years, urban agriculture has become an attractive land use alternative because of its potential to address multiple needs. Often, this research has focused on urban food planning (McClintock et al., 2012; Pothukuchi, 2015). In Latin America, urban agriculture usually remains linked to "food security" or "poverty alleviation" discourses (Knoblauch, 2012), regardless of its urban greening potential. Additionally, research concerning access to and planning of urban green space has primarily focused on parks (Chiesura, 2004; Wright-Wendel et al., 2012; Wolch et al., 2014; De la Barrera et al., 2016a, 2016b) rather than on other forms of urban greening. What is lacking is an understanding of the practical planning and policy implications of urban agriculture as a public urban green space, particularly in a South American context. As food production becomes more integrated into the urban landscape, planning and policymaking need to address urban agriculture's diversity and multi-functionality (Thibert, 2012; Cohen and Reynolds, 2014).

This paper explores whether urban agriculture provides an

opportunity to increase public green spaces – in terms of spatial quantity, access and distribution – in an industrializing country, using the example of Santiago de Chile. It thus aims to contribute to planning policies concerning urban green space in such a context. The study fills an existing knowledge gap on the current and potential roles of urban agriculture in managing the practices of green spaces – usually parks and squares – that are planned and conceived in Santiago. It analyses the opportunities, barriers and innovations that urban agriculture brings to the current planning policies of urban green spaces, by answering two main research questions:

- i What are the similarities and differences between current green spaces – usually parks and squares – and urban agriculture as modes to provide public urban green spaces to the City of Santiago?
- ii Which modifications in planning policies are needed to integrate urban agriculture within Santiago's definition of a green space?

To answer these questions, we applied the Policy Arrangement Approach (Arts and van Tatenhove, 2004), which is further developed in Section 2. In Section 3, we explain the research design and methodologies used. In the following section, we present the results on urban green space and urban agriculture policy arrangements, and we address the relations between parks and urban agriculture as forms of urban greening. Finally, the discussion connects our findings on the combined analysis of urban agriculture and green space policy arrangements to the literature on urban agriculture by zooming in on the spatial and social dimensions of urban agriculture. Section 6 presents the conclusions and recommendations for research and policy.

## 2. Theoretical approach

### 2.1. The policy arrangement approach (PAA)

The policy arrangement approach (PAA) has its roots in environmental policy and is a theory for analysing organization and substance as well as stability and change in policy domains (Arts and van Tatenhove, 2004). In this paper, we used the PAA to analyse how Santiago's urban agriculture initiatives are coping within the city's green space policy domain. First, we applied the PAA to examine two policy domains concerning urban green space planning and urban agriculture in Santiago de Chile. Second, because of its capacity for analysing both stability and change in policy domains, we used the PAA to examine change that emerging urban agriculture initiatives bring to the city's green space policies. We first assumed that there is a current and temporally stabilized green space planning policy domain in Santiago that conceives green spaces mainly as parks and squares. Secondly, we hypothesized that urban agriculture practices may bring change and innovation within this rather stable green space policy arrangement.

In previous studies, the PAA has proved useful as an analytical tool for environmental policy change (Van der Zouwen, 2006; Wiering and Arts, 2006; Wiering and Immink, 2006; Arnouts, 2010) and as an evaluative tool for governance capacity assessment (Dang et al., 2016). It has been applied in various environmental policy fields, including natural resource and forest policy (Veenman et al., 2009; Arnouts, 2010; Ayana et al., 2013; Dang et al., 2016), water management (Wiering and Immink, 2006), agriculture and rural development (Lieverink, 2006).

Arts et al. (2006) define a policy arrangement as the 'temporary stabilization of the *content* and *organization* of a policy domain'. While the two aspects of content and organization are further elaborated, the PAA distinguishes four dimensions: (1) actors, (2) rules of the game, (3) power and resources and (4) discourses. The 'actors', 'rules of the game', and 'power and resources' refer to organizational aspects of the policy arrangement, whereas 'discourses' refer to the substantive aspects (Veenman et al., 2009). Actors might act individually or in

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