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Research article

# Structural social capital and local-level forest governance: Do they inter-relate? A mushroom permit case in Catalonia

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ABSTRACT

In diffuse forest uses, like non-timber forest products' harvesting, the behavioural alignment of pickers is crucial for avoiding a "tragedy of the commons". Moreover, the introduction of policy tools such as a harvest permit system may help in keeping the activity under control. Besides the official enforcement, pickers' engagement may also derive from the perceived legitimate decision of forest managers and the community pressure to behave according to the shared values.

Framed within the social capital theory, this paper examines three types of relations of rural communities in a protected area in Catalonia (Spain) where a system of mushroom picking permits was recently introduced. Through social network analysis, we explore structural changes in relations within the policy network across the policy conception, design and implementation phases. We then test whether social links of the pickers' community relate to influential members of the policy network. Lastly, we assess whether pickers' bonding and bridging structures affect the rate of permit uptake.

Our results show that the high degree of acceptance could be explained by an adequate consideration of pickers' preferences within the decision-making group: local pickers show proximity to members of the policy network with medium-high influence during the three policy phases. The policy network also evolves, with some members emerging as key actors during certain phases. Significant differences are found in pickers' relations among and across the involved municipalities following an urban-rural gradient. A preliminary relation is found between social structures and differential pickers' engagement. These results illustrate a case of positive social capital backing policy design and, probably, also implementation. This calls for a meticulous design of forest policy networks with respect to communities of affected forest users.



## 1. Introduction

The relations among community members constitute their social structure[1], which is a key dimension of social capital (Nahapiet and Ghoshal, 1998). Social capital (SC) has been defined as the features of social organizations that facilitate coordination and cooperation for mutual benefit of the members (Putnam, 1993) and eventually of society in general. These features include networks, social norms of reciprocity and trust (Bowles and Gintis, 2002) which, if used in a positive manner, encourage collective action to achieve sustainable development (Pretty and Ward, 2001; Woolcock, 2001). Hence, networks of information, collaboration and trustworthy relationships in communities can promote the coordination of individual behaviours for the management of natural resources.

In the case of forest resources, coordinating among and between land managers and users in open-access forests constitutes a key

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[1] We adopt the social network theory understanding of "social structure" as "*a network of social ties or relationships*" (De Nooy et al., 2005:3). A social network is "*a social structure which consists of actors -or nodes- and ties -sometimes referred to as links or relationships-*" (Ennis and West, 2010:408).

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challenge. Diffuse uses take place in not-fenced forests when e.g. hikers, Non-Wood Forest Product (NWFP) pickers or fuelwood harvesters practice their activities. If these users do not align around formal or informal norms over the management of common-pool resources, a "tragedy of the commons" (Hardin, 1968) may ensue, with ecological, social and economic consequences, e.g. resource depletion, conflicts or decreased benefits, respectively (see e.g. Pandit and Thapa, 2003; Yang et al., 2009).

When facing cooperative decisions, rational individuals with incomplete information about others' behaviour face the so-called prisoner's dilemma, with neutral or positive outcomes if everyone cooperates, but with worse pay-offs otherwise. Community incentives contribute to solving the prisoners' dilemma by aligning community members around a socially desirable behaviour (Bowles and Gintis, 2002), e.g. improved management and use of forests. Such community incentives are grounded on social capital, because recurrent interactions among community members determine peer control, reciprocal recognition and social sanctions of free-riding behaviour (Bowles and Gintis, 2002). In this context, network-based community governance (Jones et al., 1997; O'Toole and Burdess, 2004) grounded on community incentives represents an alternative or complement to traditional governing approaches (economic and informational policy tools, or top-down regulations).

This paper focuses on the interactions among forest stakeholders as a relevant factor for forest governance. In particular, our objective is to provide evidence on how the structural social capital of a community inter-relates with aspects of network governance, and its dynamics when introducing a reform in the forest sector. Addressing SC from a policy cycle standpoint acknowledges potential changes and their driving forces. For example, overlooking pre-existing power structures in the policy design and/or implementation may entail undesirable outcomes (McDougall and Banjade, 2015; Rico García-Amado et al., 2012). Moreover, to analyse the relations between decision-makers and final users during the different policy stages we descend to the local (spatial and administrative) level where abstract forest policy goals are put into practice by means of projects and management choices (e.g. Secco et al., 2014). The local level is the most effective for stakeholder involvement, where affected end-users have more chances to impinge on managerial choices.

Our research investigates the inter-relation between social structure and forest governance at the local level in a case study regarding the policy process of introducing a mushroom picking permit system in Catalonia (north-eastern Spain). Our specific research questions are:

a) How do the social relations embedded in the policy network change during the policy process?
b) Whether and how do the structural relationships between decision-makers and affected forest users relate to the outcomes of the governance reform?
c) Do significant differences in social structure across local communities affect their compliance with the proposed new forest governance instrument?

Studying this interplay is relevant insofar as network governance approaches are increasingly being adopted in the forest domain (Arts, 2014; Glück et al., 2005). Most recent research on network governance has concentrated on forest policies designed to establish networks: community forestry (Baynes et al., 2015), participatory processes (Nath et al., 2010), or forest co-management (Akamani and Hall, 2015). However, there are few analyses on how existing networks of private and public agents in rural contexts influence the broader set of forest policies, in particular at local level. Specifically, there is a lack of empirical knowledge on how forest policy and users' networks -and hence SC- interact, how they affect local forest governance (in terms of acceptability or compliance), and whether the changes in governance modes (e.g. a policy reform) affect SC as well.

The novel aspect of this paper regards (i) the social analysis of both spheres: decision-makers and forest users; and (ii) the longitudinal analysis of the policy process, including the pre and post situations, but also the deliberation phase.

The paper is structured as follows: Section 2 sets the theoretical background and analytical framework, Section 3 explains the methodology, Section 4 presents the results and discusses them, conclusions are in Section 5.

## 2. Structural social capital during the policy cycle

### 2.1. Theoretical background

The SC features of local communities that interact with natural resources shape their governance patterns, given e.g. their social relations, reciprocity, social norms, and sanctions (Bodin and Crona, 2009; Pretty and Ward, 2001). Based on the Social Capital theories, social relations have different functional meanings depending on their strength (Granovetter, 1973) and potential capacity to influence, via networks, the decision-making level. "Bonding" SC labels the strong ties among individuals of the same circle, while weak ties connecting individuals of different circles constitute the so-called "bridging" SC (Andriani and Christoforou, 2016). Bonding SC generally contributes to fulfilling basic needs, whereas bridging SC is highlighted for its potential to introduce innovations e.g. from other sectors (Bodin and Crona, 2009). A third type of ties called the "linking" SC connect social actors with powered individuals outside the community, e.g. higher hierarchies, and impact community outcomes (Woolcock, 2001).

Policy networks interconnect actors with heterogeneous interests, with a coordination function to achieve collective action within a policy area (Sandstrom and Carlsson, 2008). Coordination in a strongly regulated European context may stem from the official mandates assigned to decentralised decision-making bodies, e.g. the boards of protected areas. Beyond official entities, the network governance[2] approach acknowledges the vested interests of actors who are not necessarily formally involved in political processes but are relevant for the collective action. This perspective allows to visualise subgroups potentially marginalised in the environmental decision-making, with consequent possible community conflicts (Ishihara and Pascual, 2009).

### 2.2. Analytical framework

We therefore analyse two levels of forest policy actors, namely: the (potential) decision-makers – stakeholder representatives, in this paper the "policy network" (PN)-, and the end-users affected by such decisions –e.g. citizens using the forest. We study their structural relationships during a governance reform leading to collective action where the policy instrument does not explicitly bolster networks (Górriz-Mifsud et al., 2016). The decision-makers set the normative and operational context for the collective action to thrive (Ostrom, 2000) driven by problem-solving objectives (Arts, 2012), while forest users are expected to adhere to the policy decision. PN structures contribute to explaining the policy

[2] "Network governance" being a multi-faceted concept, we adopt the Ernstson et al. (2010) understanding of the structures and processes by which collective action among a diversity of social actors is coordinated towards upholding certain publicly held values and resources.