

Simmelian brokerage and social capital: Reconciling social cohesion and structural holes

Vito Latora, Vincenzo Nicosia, Pietro Panzarasa
Queen Mary University of London

In the social sciences, the debate over the structural foundations of social capital has long vacillated between two positions on the relative benefits associated with two types of social structures: closed structures, rich in third-party relationships, and open structures, rich in structural holes and brokerage opportunities. On the one hand, proponents of the benefits of closed structures draw on the idea that social cohesion sustains trust, a sense of belonging, cooperative behaviour, the enforcement of social norms, and the creation of a common culture. On the other, advocates of the value of open structures emphasise the information and control benefits that actors can extract from brokering between otherwise disconnected others. We engage with this debate by focusing on the measures with which the two conceptions of social capital have traditionally been formalised: clustering and effective size. While clustering has typically been used for measuring the extent to which a node is embedded within a closed cohesive structure, effective size is a measure for detecting the non-redundancy of a node's contacts, and therefore the degree to which the node's local neighbourhood is rich in structural holes. We show that clustering and effective size are simply two sides of the same coin, as they can be expressed one in terms of the other through a simple functional relation. Drawing upon this relation, and in qualitative agreement with the organisational literature on Simmelian ties, we then develop a novel measure - Simmelian brokerage - for detecting a generative mechanism of social capital that lies at the interface between closed and open structures. Being sensitive not only to the number of links in a node's local network, but also to variations in the position of links across local networks of the same density, Simmelian brokerage captures opportunities of brokerage between otherwise disconnected groups of densely interconnected nodes. By detecting the extent to which a node belongs to multiple groups that are tightly knit and disconnected from each other, Simmelian brokerage dovetails with the idea that multiple group-affiliations enable a node to extract social capital from the underlying structure by blending social cohesion with structural holes. Implications of our findings for research on social capital and complex networks are discussed.