



# When is brokerage negatively associated with economic benefits? Ethnic diversity, competition, and common-pool resources



Michele Barnes<sup>a,b,c,\*</sup>, Kolter Kalberg<sup>b</sup>, Minling Pan<sup>d</sup>, PingSun Leung<sup>a</sup>

<sup>a</sup> Department of Natural Resources and Environmental Management, University of Hawaii at Manoa, 1910 East-West Rd., Sherman 101, Honolulu, HI 96822, USA

<sup>b</sup> Joint Institute for Marine and Atmospheric Research, University of Hawaii at Manoa, 1000 Pope Rd., Marine Science Building 312, Honolulu, HI 96822, USA

<sup>c</sup> Australian Research Council Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, QLD 4811, Australia

<sup>d</sup> Pacific Islands Fisheries Science Center, NOAA National Marine Fisheries Service, 1845 Wasp Blvd, Building 176, Honolulu, HI 96818, USA

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## ABSTRACT

There is a growing body of literature positively linking dimensions of social capital to economic benefits. Yet recent research also points to a potential “dark side” of social capital, where over-embeddedness in networks and the pressures associated with brokerage are hypothesized to constrain actors, having a negative effect on economic outcomes. This dichotomy suggests that context is important, yet the overwhelming majority of existing empirical evidence stems from socially homogenous populations in corporate and organizational settings, limiting a broader understanding of when and how context matters. We advance this discourse to a socially fragmented, ethnically diverse common-pool resource system where information is highly valuable and competition is fierce. Merging several unique datasets from Hawaii’s pelagic tuna fishery, we find that network prominence, i.e., being well connected locally, has a significant, positive effect on economic productivity. In contrast, we find that brokerage, defined here as ties that bridge either structurally distinct or ethnically distinct groups, has a significant, negative effect. Taken together, our results provide empirical support to widespread claims of the value of information access in common-pool resource systems, yet suggest that in ethnically diverse, competitive environments, brokers may be penalized for sharing information across social divides. Our results thus contribute to an emerging theory on the fragile nature of brokerage that recognizes its potential perils and the importance of context.

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## 1. Introduction

There is a growing body of literature linking dimensions of social capital to economic performance. The social capital concept captures the idea that social bonds, and the resources embedded within them, comprise an important asset that can be leveraged for individual or collective gain (Bourdieu, 1986; Burt, 2005; Coleman, 1990; Lin, 1999). At the individual level, structural dimensions of social capital, such as network prominence and brokerage, are argued to positively affect performance by providing access and control benefits over information and resources (Burt, 1992;

Freeman, 1979; Granovetter, 1973), which is supported by a large body of empirical evidence (e.g., Burt, 2002; Fafchamps and Minten, 2002; Greve et al., 2010; Janhonen and Johanson, 2011). Yet, recent research also points to a “dark side” of social capital, highlighting that in some cases, over-embeddedness and the pressures associated with brokerage can place constraints on actors, potentially having a negative effect on performance (Bizzi, 2013; Gargiulo and Benassi, 1999, 2000; Krackhardt, 1999; Stovel and Shaw, 2012). This dichotomy suggests that context is important, yet the overwhelming majority of existing empirical evidence stems from socially homogenous populations in corporate and organizational settings, limiting a broader understanding of how context mediates the relationship between social capital and economic performance.

We live in an increasingly diverse world where immigration and migration are rapidly altering the social fabric of communities that underlie economic pursuit, particularly in the U.S. (MacDonald and Sampson, 2012; Smith and Edmonston, 1997). The purpose of this research is thus two-fold. We first advance the discourse of the role of social capital on economic outcomes to a socially

\* Corresponding author at: Australian Research Council Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, QLD 4811, Australia. Tel.: +61 7 4781 6328.

E-mail addresses: [barnesm@hawaii.edu](mailto:barnesm@hawaii.edu), [Michele.Barnes@jcu.edu.au](mailto:Michele.Barnes@jcu.edu.au) (M. Barnes), [kolter.kalberg@noaa.gov](mailto:kolter.kalberg@noaa.gov) (K. Kalberg), [minling.pan@noaa.gov](mailto:minling.pan@noaa.gov) (M. Pan), [psleung@hawaii.edu](mailto:psleung@hawaii.edu) (P. Leung).

fragmented, ethnically diverse setting where information is highly valuable and competition is fierce. We draw on existing research in network science, sociology, psychology, and economics to theorize a positive effect of network prominence with diminishing marginal returns and a negative effect of brokerage under these conditions, where brokerage identifies ties that bridge both structural and ethnic divides. Next, we empirically test our assumptions by linking several unique datasets on a socially fragmented, ethnically diverse population of fishers operating in Hawaii's pelagic longline fishery, where individuals compete in a complex and dynamic environment over limited common-pool resources (CPRs).

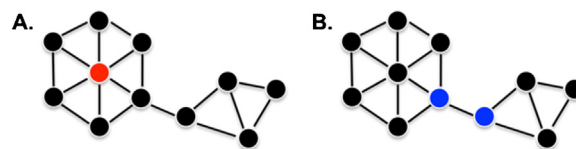
This manuscript is organized as follows. The remainder of this section briefly reviews the literature on social capital and economic outcomes, extends this discussion to account for the potential mediating effects of ethnic diversity and competition over CPRs, and introduces our research hypotheses. Next we describe our study context, data, and methods. We then present and discuss our results. Before concluding, we highlight the significance of our findings and the limitations of our empirical approach.

### 1.1. Social capital and economic outcomes

The social capital concept originated within the field of sociology with a focus on individuals and small groups, and the benefits accruing to them via their social relationships (Bourdieu, 1986; Coleman, 1988). The concept was quickly expanded by various scholars to include many aspects of social life thought to benefit individuals and communities, such as trust, shared norms and values, reciprocity, and exchanges, all of which can facilitate cooperation and collective action among actors (Nahapiet and Ghoshal, 1997; Putnam, 2001; Woolcock, 2001). Due to this broad and sometimes vague interpretation of social capital, the concept has been plagued with controversy about its precise meaning and effects (Portes, 2000). Yet to a degree, there has been a consensus among scholars that social capital refers to the ability of human actors to secure benefits via membership in social structures or networks (e.g., Burt, 2000; Granovetter, 1985; Lin, 1999; Portes, 1998). However, some still argue that the concept includes not only this structural social network dimension, but also a cognitive and relational dimension comprised of shared norms/values and trust, respectively (Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998).

Acknowledging the multidimensionality of the concept, here we adopt a structural, or "networked resources" (Kadushin, 2004), view of social capital. Akin to classical social resource theory (e.g., Lin, 1986) and structuralist position theory (Wellman, 1988), proponents of the structural view of social capital argue that social relationships comprise an important resource that can be accessed or mobilized for purposive action (Lin, 1999) or competitive gain (Burt, 2000), and an actor's location in the structure of a social network can facilitate or constrain their opportunities for action (Bourdieu, 1986; Burt, 2000; Coleman, 1990; Lin, 1999). Drawing heavily from the work of Granovetter (1973), Burt (2005), Lin (1999), Wellman and Frank (2001) and others, from this perspective social capital is typically assessed by gauging the nature and extent of an individual's interpersonal ties or their structural position within a social network.

There are various mechanisms by which aspects of social structure have been shown to produce tangible benefits, two of which are network prominence and brokerage (Fig. 1). The former argues that well-connected individuals centrally embedded in networks benefit from increased access to information and resources (Borgatti et al., 1998; Freeman, 1979). Moreover, when surrounded by cohesive ties, they also benefit from a normative environment that facilitates trust and cooperation among



**Fig. 1.** A structural view of social capital: network prominence (A) and brokerage (B). Network prominence can be captured by degree centrality, which corresponds to the number of direct ties one has in a network. In network A, the node with the greatest number of ties (where degree centrality=6) is shaded in red. Brokers act as intermediaries in networks by linking isolated individuals or disparate groups. In network B, the blue shaded nodes are acting as brokers.

actors (Coleman, 1990, 1988). By their very nature, social relationships constitute information channels that can reduce the amount of time and investment necessary to gather and process information (Molina-Morales and Martínez-Fernández, 2009). Social interactions can also facilitate learning through close, intensive information exchange, and foster the creation and diffusion of innovations (Conley and Udry, 2010; Rogers Everett, 1995). Well-connected, centrally located individuals in networks have increased opportunities to capitalize on these benefits in pursuing their goals, and as such network prominence has been positively linked to economic productivity (Abbasi et al., 2011; Greve et al., 2010).

Brokerage captures the process of connecting disparate groups of actors or isolated individuals in social structures (Fig. 1). More formally, Stovel et al. (2011) define brokers as "intermediary links in systems of social, economic, or political relations who facilitate the trade or transmission of valued resources that would otherwise be substantially more difficult." The authors identify two crucial defining characteristics of brokers: (1) they bridge gaps in social structure, and (2) they facilitate the transfer of goods, information, opportunities, or knowledge across these groups.

The concept of brokerage has enjoyed substantial theoretical development by Burt (1992, 2002, 2005) and his theory of "structural holes," which emphasizes information and control advantages of occupying brokerage positions. The argument is that in connecting disparate groups, brokerage affords actors with increased access to, and control over novel and diverse information and resources, thereby enhancing the quality of benefits available to them and increasing their opportunities for action (Burt, 1992). When an actor represents the sole route through which information or resources flow from one portion of a network to another, they exploit what Burt (1992) termed a "structural hole." As a source of social capital brokerage is typically argued to play a positive role on economic outcomes, which has obtained broad support in the empirical literature across a range of organizational settings (e.g., Abbasi et al., 2011; Burt, 1992, 2005; Tsai and Ghoshal, 1998).

### 1.2. The dark side of social capital

Though social capital has most commonly been associated with positive gains in productivity, there is growing evidence of a "dark side" of social capital in economic settings (Gargiulo and Benassi, 1999). Specifically, recent research cautions against being "over-embedded," or too central in networks (Aral and Van Alstyne, 2007; Ferriani et al., 2009; Molina-Morales and Martínez-Fernández, 2009; Uzzi, 1997). With more social relationships comes increasing coordination costs, as more time and energy is devoted to maintaining them (Ferriani et al., 2009). Because time and energy are exhaustible resources, increasing social ties beyond a certain point is likely to result in diminishing returns (McFadyen and Cannella, 2004). Moreover, as actors become more central in networks, they are faced with larger inflows of information and bear greater cognitive pressures associated with processing it

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