



# Knowledge sharing and the dynamics of social capital

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## ARTICLE INFO

### Article history:

Received 26 January 2008

Accepted 28 April 2011

Available online 13 May 2011

### JEL classification:

D83

Z13

### Keywords:

Mutual aid

Hold-up

Knowledge sharing

## ABSTRACT

Mutual aid often entails the sharing of knowledge. We investigate how, in turn, knowledge sharing affects the long-run dynamics of mutual aid. In our economy, agents with specific knowledge are “held up” by their principals. Inside communities, agents aid each other by sharing their specific knowledge. This process generates a new type of knowledge which exacerbates the specificity of the existing types and induces more agents to engage in mutual aid. However, since the knowledge generated is shared, it progressively renders agents inside communities more flexible and, thus, less dependent on mutual aid. We characterize conditions under which in the long-run mutual aid spreads or is abandoned.

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## 1. Introduction

The fragility of legal institutions and the limited enforceability of contracts often impede the good functioning of markets. In many circumstances, this exposes one of the parties in a transaction to the risk of being exploited by its counterpart, in turn generating inefficiencies in investment and labor decisions. A way through which agents try to tackle these problems is by engaging in various forms of mutual aid, for example forming networks and associations of mutual support.<sup>1</sup> Given the important benefits of mutual aid and cooperation, a growing number of scholars place emphasis on understanding the dynamics of this form of social capital (see, e.g., Costa and Kahn, 2003; Paxton, 1999).<sup>2</sup> It is however surprising that thus far the role of community learning has mostly been neglected in the analysis of this dynamics, especially if one considers that there is rich evidence that mutual aid frequently entails the sharing of knowledge and skills among agents. Just to mention few examples, Putnam (1993) describes the sharing of knowledge that occurred in mutual aid associations and in cooperatives in post-unification Italy (second half of the 19th century); Kilpatrick et al. (1999) extensively document community learning in the associations of mutual support formed by Australian family businesses; Fafchamps and Minten (2002) find that social networks assist Madagascar traders in sharing knowledge and skills; Conley and Udry (2010) uncover evidence that the mutual provision of help and advice facilitates the adoption of new, common technologies in communities of farmers in Ghana.<sup>3</sup>

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<sup>1</sup> For empirical analyses see, for example, Fafchamps and Minten (1999), Guiso et al. (2004) and the references therein. See also Durlauf and Fafchamps (2005) and Sobel (2002) for detailed reviews.

<sup>2</sup> Social capital is a concept that can encompass different meanings. Putnam (1995, pp. 664–665) broadly defines it as the “networks, norms, and trust that enable agents to act together more effectively to pursue shared objectives”. The form of social capital we study in this paper is “mutual aid”, that is a form of cooperative behavior that fosters the diffusion of knowledge and trust and reinforces ties among agents.

<sup>3</sup> Barr (2000) finds evidence of intense knowledge sharing within networks of manufacturers in Ghana, while Guiso and Jappelli (2005) find that in Italy community learning contributes to creating a common “equity culture”, meant as shared knowledge about financial instruments and investment opportunities.

The objective of this paper is to study the dynamics of mutual aid in an economy where agents support each other by sharing their specific knowledge or skills. We consider a model economy where principals and agents engage in productive matches. Agents have knowledge of different types and types have a limited degree of substitutability. This renders agents specific, exposing them to being “held up” by their principals (as in [Caballero and Hammour, 1998](#), for example). In fact, principals can threaten to withhold “actions” necessary for the survival of the productive matches and, by exploiting agents’ limited ability to rematch with other principals, extract rents. In turn, anticipating the hold-up, agents are discouraged from investing in specific productive knowledge. In our economy, a scheme of mutual aid among agents can prevent the hold-up. Inside a community, an agent can aid another by learning and implementing the action necessary for the continuation of her match. Therefore, knowledge sharing prevents principals from threatening to sever matches.

We study the impact that the sharing of knowledge has on the diffusion of mutual aid and find that two forces compete with each other. On the one hand, agents inside communities generate a new type of shared knowledge. Over time, this progressively renders the knowledge of agents outside communities more specific, increasing their risk of being held up by principals. Through this force knowledge sharing thus tends to raise agents’ incentive to join communities and, hence, fosters the diffusion of mutual aid. On the other hand, because the knowledge generated by mutual aid is shared by all agents inside communities, its diffusion renders agents inside communities more flexible. As a result of the increase in their flexibility, for these agents the hold-up problem becomes progressively less severe and mutual aid loses appeal. Through this force knowledge sharing thus tends to undermine the need for mutual aid inside communities. We investigate conditions under which one of the two forces prevails. We find that mutual aid monotonically increases in importance over time as long as its net benefit is sufficiently large or sufficiently small. When instead the net benefit of mutual aid is in an intermediate range, mutual aid spreads for some time but then begins to decline when the second force starts to dominate. In the latter scenario, mutual aid is abandoned in the long run.

Before delving into the analysis a caveat is in order. In this paper, we are not interested in exploring the specific mechanisms through which the sharing of knowledge or skills occurs inside communities but rather its long run impact on the diffusion of mutual aid. Thus, we deliberately model the sharing of knowledge in a parsimonious way that could fit different contexts. The remainder of the paper is organized as follows. In the next section, we relate our contribution to the literature. Section 3 lays out the setup and solves for the dynamics and the steady state. In Section 4, we extend the setup. Section 5 concludes.

## 2. Related literature

This paper investigates the interaction between mutual aid and community learning and how this interaction affects the dynamics of mutual aid. The paper thus relates to a first, interdisciplinary strand of literature that studies the incentives and mechanisms that drive social capital accumulation. A critical issue that this literature debates is what induces agents to accumulate social capital. On the one hand, a stream of studies build on Becker’s theory of social interactions ([Becker, 1974](#)) and view the accumulation of social capital as the outcome of self-interested investment decisions that agents make to maximize their utility (or, as in [Bourdieu, 1980, 1986](#) the well-being of their groups). For example, [Glaeser et al. \(2002\)](#) argue that the incentives for social capital accumulation are akin to those that drive human capital accumulation. On the other hand, the leading view in sociology is that social capital is a public good incidentally accumulated as a by-product of activities of social participation (for instance, because social participation promotes the formation of new associations). In turn, this collective asset contributes to the production of relational goods (e.g., trust and shared norms raise the return to the time spent in associations). This position, pioneered by [Coleman \(1990\)](#) and rational choice sociologists, has recently been reprised in economics by [Antoci et al. \(2007, 2005\)](#), for example. The approach we follow in this paper is closer to the former stream of studies: in our economy social capital is a private good in that agents join a community and engage in mutual aid for their own interest (that is, to seek protection from exploitation).

While the motivations that lead agents to accumulate social capital have been the object of considerable attention, relatively few studies in this literature investigate formally the mechanisms of social capital accumulation, and it is especially in this dimension that our paper can provide a contribution. The extant studies typically view the interplay with economic growth and technical progress as crucial for understanding these mechanisms. On the one hand, it is sometimes argued that low levels of wealth and development favor family ties while higher levels strengthen social participation and the development of reciprocity (see, e.g., [Banfield, 1958](#)). On the other hand, it is acknowledged that economic growth can hinder social capital accumulation through various channels: it can reduce the time available for social activities ([Hirsch, 1976; Antoci et al., 2007](#)) and increase labor mobility, hampering the consolidation of social ties [Routledge and von Amsberg \(2003\)](#).<sup>4</sup> [Antoci et al. \(2005\)](#) develop a growth model with private and social capital where social capital is an input in the production of relational goods and accumulates as a by-product of social participation. They show that depending on the parameters of the model (e.g., the degree of agents’ impatience and the depreciation rate of social

<sup>4</sup> [Sethi and Somanathan \(1996\)](#) show that social norms can be put under pressure by the fragmentation of communities induced by demographic and migratory flows. On the empirical side, [Costa and Kahn, 2003](#) find that being in the labor force negatively predicts membership in organizations. For empirical analyses on the determinants of social capital, see also [Alesina and LaFerrara \(2002\)](#) and [La Ferrara \(2002\)](#).

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