# Revisiting Economic Action and Social Structure: The Role of Embeddedness in the Age of Amazon

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**Abstract**

Network scholars posit that networks provide reputational enforcement superior to market reputation (i.e. the reputation that would emerge from a sample of market participants). In this view, reputational signals are local to social network neighborhoods: they are stronger in the presence of shared 3rd parties and decay with network distance, as a result of two mechanisms: (1) it is costly to identify and communicate with socially distant others; (2) there is little reason to trust them. Consequentially, reputational sanctions and norm enforcement are also local to the network. The rise of reputational aggregation platforms (RAP) such as Amazon and eBay call these mechanisms into question. This paper identifies an additional mechanism driving network-based reputational enforcement, that places a boundary condition on both network and market reputation-based reputational enforcement. It argues that the informativeness of a reputational signal from A to B about C is increasing in B's belief that A used the same norms B would in making her evaluation of C. The closer A's norms are to B's, the more informative the signal. Though some exchanges rely on widely shared norms, many exchanges rely on locally shared understandings between exchange partners. While such norms can and do differ across actors, thereby diluting the informativeness of reputational signals, there are good reasons to believe that norms, and thus reputations and reputational enforcement are local to social network neighborhoods. The more local the norms, the more local the reputation and the less informative is market reputation (and thus, RAPs). The more universal the norms, the more informative is market reputation, and the greater the ability of RAPs to enforce norms.

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## 1. Introduction

Starting with Granovetter's seminal work on the embeddedness of economic activity, scholars from a wide range of literatures have highlighted the role of social networks in facilitating exchange over and above market reputation (i.e. the reputation that would emerge from a random sample of market participants) (Granovetter 1985). Granovetter posited that reputational signals decay with network distance and as a result, reputation is inherently *local* to social network neighborhoods. Word of Bob's misdeeds towards Anne will spread among Anne's contacts, and perhaps their contacts, but not much further. Consequently, the extent to which Bob risks losing exchange partners as a result of defrauding Anne depends on the extent to which Bob's current and potential exchange partners are close to Anne in the social network. The further they are from Anne, the lower the risk of losing exchange opportunities as a result of defrauding Anne, and the more likely Bob is to engage in such behavior. This basic insight – that reputation and thus cooperation is *local* to social network neighborhoods – has been used to explain a variety of phenomenon. Economists and sociologists have used it to explain actors' choices of exchange partners and decisions to cooperate or defect in settings as diverse as 11$^{th}$ century Mediterranean trade, 20$^{th}$ century NY stock and diamond exchanges, modern-day venture capital investments, supply chains, strategic alliances and consumer purchases (Baker 1984; Coleman 1988; Greif 1989, 1993; Bernstein 1992, 2015, 2018; Gulati 1995; Walker, Kogut, and Shan 1997; DiMaggio and Louch 1998; Stuart and Sorenson 2005; Robinson and Stuart 2007). Management and organization scholars have used it to explain organizations' make-or-buy decisions and the formation of industrial clusters (Granovetter 1985; Powell 1990; Jones, Hesterly, and Borgatti 1997; Sorenson and Stuart 2001). Finally, both sociologists and economists have used it to explain norm enforcement and public good contributions in densely interconnected groups, and the evolution of cooperation and trust in society writ large (Coleman 1988; Raub and Weesie 1990; Portes and Sensenbrenner 1993; Sorenson and Stuart 2001; Buskens and Raub 2002; Burt 2005; Gallo and Yan 2015; Melamed, Harrell, and Simpson 2018).

Many of these works take the *local* nature of reputation for granted. Those that seek to explain why that might be the case argue that reputational signals decay with network distance because of (a) the costs of communicating signals to socially distant others, and (b) the difficulty

in assessing the credibility of their claims (see for example, Granovetter 1985; Coleman 1988; Greif 1989; Raub and Weesie 1990; Burt 2005). Though these mechanisms were undoubtedly powerful when theorized in the 1980s-early 2000s, there are reasons to doubt their continued validity in the modern economy. From consumer purchases (Amazon), to housing and transportation services (Uber, Airbnb) and freelance work (Upwork), more and more exchanges are being conducted on platforms that aggregate reputational signals from socially disconnected actors into a single signal that can be accessed by anyone*, globally,* irrespective of network position (henceforth: reputation aggregation platforms, or RAPs). RAPs overcome the problem of communicating signals between strangers by providing an easily accessible venue in which reputational signals can be publicly shared. They resolve the problem of credibility by aggregating reputational signals across a large number of participants and employing sophisticated algorithms to weed out fake reviews (Khan 2019). While imperfect, the resulting aggregated reputational signals have proven effective in facilitating cooperation between socially distant actors in a wide range of exchanges. Actors on these platforms respond to opportunistic actions with bad ratings. Bad ratings lead to a decline in exchange opportunities, that both discourages misconduct and weeds out those who consistently engage in it (Dellarocas 2003; Resnick et al. 2006; Diekmann et al. 2014; Luca 2011; Anderson and Magruder 2012). RAPs are so effective in facilitating cooperation *globally* that individuals now regularly use them to conduct exchanges that were once considered so rife with fraud that they became punchlines and the subject of Nobel prize papers (Akerlof 1970 on the sale of used cars). Though almost inconceivable 20 years ago, many people no longer think twice before entering an unmarked car driven by a complete stranger (Uber, Lyft) or purchasing a used vehicle without inspecting it firsthand (eBay and other online platforms).

The emergence and widespread use of RAPs to facilitate cooperation challenges our understanding of the role of social networks in disseminating reputational information and facilitating exchange. If RAPs can effectively disseminate reputational information and deter malfeasance, do social networks still have a role in facilitating cooperation? Relatedly, if aggregated reputational signals are sufficient to facilitate cooperation, should we expect RAPs to cover an ever-increasing set of interactions? A Yelp! for dating, an eBay for strategic alliances, an Amazon for hiring executives? Finally, how should we make sense of recent empirical

evidence on the role of social networks in facilitating exchanges as diverse as biotech strategic alliances and manufacturing supply chains (Robinson and Stuart 2007; Bernstein 2015)?

I argue that the answer to these questions lies in a previously unrecognized feature of reputational signals: the informativeness of a signal to the receiver increases with the extent to which the sender and the receiver share the same norms as to what cooperation entails. Hearing from Anne that Bob has failed to cooperate in an exchange is far more informative to Chris if Chris knows and shares Anne's definition of cooperation. To be sure, norms of cooperation – *i.e.* ideas about what constitutes cooperation and defection – are relatively standardized, or *globally* shared, for a wide range of exchanges. We can all agree that violating an explicit agreement is a form of defection, and that a used car seller should disclose any mechanical problems prior to sale. As a result, reputational ratings of used car salesmen from socially distant actors, and the aggregation thereof, can be highly informative. That being said, there are many forms of exchange for which *global* norms defining cooperation are either unavailable or too broad to define what cooperation means. This is inherently true for incomplete contracts – exchange that are so complex that neither the parties to them, nor anyone else, can pre-specify what each ought to do in any likely future state of the world (Macneil 1978; Williamson 1985; Grossman and Hart 1986; Hart and Moore 1990). To give but a few examples, partners to a strategic alliance cannot pre-specify what each ought to do in any relevant future state of the world. Nor can managers looking to fill a position that requires the exercise of discretion, or seeking to base compensation on subjective evaluations. Similarly, managers seeking to replicate Toyota's famous production system struggle to pre-specify when it will be acceptable for their employees to pull the Andon cord that stops the assembly line – a costly and disruptive act that gives managers time to resolve an issue flagged by the employee, while also giving employees a long break. When circumstances that were not explicitly agreed upon inevitably arise, exchange partners and outside observers alike cannot rely on prior agreements or broad *global* norm like "a men's word is his bond" to distinguish whether a given action is an act of defection or an act of cooperation. Instead, they are often left with nothing but the norms of cooperation they believe in to evaluate whether a particular action is cooperative or opportunistic. Different reasonable actors can and do reach different conclusions on what cooperation entails and thus, whether a given action was cooperative or opportunistic (Weber and Camerer 2003; Selten and Warglien 2007; Chassang

2010; Gibbons and Henderson 2012). That is partially why the Toyota production system is so difficult to copy (Gibbons and Henderson 2012).

Yet, while norms of cooperation can and do differ across different actors, their distribution across the social network is not random. Whether because (a) past successful cooperation indicates or helps create shared norms and practices (Uzzi 1996); (b) homophily implies that actors with similar values are more likely to form ties with each other (Mcpherson, Smith-lovin, and Cook 2001); or (c) that dense ties and shared 3rd parties facilitate the creation of shared norms (Burt 1992, 2005; Granovetter 2005; Simpson and Willer 2015), we have reasons to believe that norms are more likely to be homogenous within densely connected groups and between actors who are proximate to each other in the social network. In other words, norms of cooperation for more complex forms of exchange are likely to be *local* to a social network neighborhood. As a result, reputation and cooperation are likely to be *local* as well. For such exchanges, the informativeness of reputational signals will decay with network distance not because socially distant actors cannot credibly communicate with each other, but because socially distant actors are more likely to have different norms such that the same signal will not be as informative for them as it would be to a socially proximate actor. Thus, market reputation will be highly informative when norms of cooperation are standardized, or *global*, giving rise to RAPs and diminishing the relative norm-enforcing power of social networks, over and above the market reputation. Conversely, market reputation will be far less informative when norms of cooperation are *local*. For these more complex forms of exchange social networks are likely to remain key to the spread of reputational information, the enforcement of norms of cooperation, and thus actors' choice of exchange partners, and decisions to cooperate or defect. The distribution of norms thereby sets boundary conditions on the norm enforcement capabilities of market reputation (and RAPs) and social networks alike.

The remainder of this paper is organized as follows. Section 2 discusses the importance of shared norms of cooperation for successful exchange, considers their variance in the population, and illustrates how variance in norms of cooperation can diminish the informativeness of reputational signals. Section 3 argues that while norms of cooperation for economically important exchanges are likely to vary in the population, they are nevertheless likely to be *local* to social network neighborhoods. Section 4 brings these arguments together to

suggest that the distribution of norms of cooperation sets a boundary condition on the ability of both social networks and market reputation (and thus RAPs') facilitate cooperation. *Local* norms of cooperation breed *local* reputation, norm enforcement, and cooperation. *Global* norms of cooperation breed *global* reputation, norm enforcement, and cooperation, and allow RAPs to emerge and aggregate reputational signals in an informative way. Section 5 discusses another potential boundary condition on the ability of networks to facilitate exchange. Section 6 concludes and discusses the implications.

## 2. Norms of Cooperation and the Informativeness of Reputational Signals

At first glance the meaning of cooperation in any given exchange seems rather straightforward. Surely, it must mean following through on one's promises to one's exchange partner. The difficulty lies in the fact that the content of the very same promise can vary dramatically across different actors. Certainly, some forms of exchange have become so standardized as to allow the emergence of a *global* norm of cooperation. Consumers throughout the world agree on what it means for a seller to cooperate on a sale of a fan on Amazon, a used car on eBay, or a personalized bracelet on Etsy. What matters is not that the fan, bracelet, or the used car itself are standardized, but the fact that the meaning of cooperation is. Used cars, bracelets, and fans vary from each other, but we all agree on what their main features are, and on what the seller must disclose prior to sale. As a result, buyers consider sellers who honestly disclose all the relevant information cooperative even if they wind up disliking the product (note that RAPs such as Amazon, eBay and Etsy often collect ratings for sellers and products separately). Such *global* norms of cooperation make reputational signals from a stranger almost as informative as the opinions of a close friend, and the aggregated opinion of hundreds or thousands of strangers likely more informative than the small sample size individuals can collect from their network contacts. It is not surprising, then, that 82% of US consumers read online reviews, and that 76% consider them to be as trustworthy as recommendations from a family member or a friend (Smith and Anderson 2016; Murphy 2019).

Yet while *global* norms defining cooperation are available for some forms of exchange, that is not always the case. Many significant forms of exchange, including those underlying important organizational practices, lack *global* norms of cooperation delineating what each

exchange partner ought to do in every likely eventuality. This is especially true for exchanges known as incomplete contracts. These are exchanges that are so complex that it is impossible for the parties to them, or indeed anyone else, to anticipate all relevant future states of the world and agree upon the proper course of action in any likely eventuality (Macneil 1978; Williamson 1985; Grossman and Hart 1986; Hart and Moore 1990). As a result, both the agreements themselves and broad *global* norms of cooperation, such as "a man's word is his bond" or fairness can only provide limited guidance as to whether a given action is an act of defection or an act of cooperation.

To give but a few examples, managers often cannot pre-specify the conditions under which they will allocate subjective bonuses. Indeed, even when objective criteria are available, unforeseen circumstances might complicate their implementation. That is precisely what happened to Lincoln Electric's promise to share its profits with its employees, when it expanded overseas and the new foreign factory's losses put the company in the red despite the continued profitability of its domestic factories. Under such circumstances, should Lincoln Electric pay its US employees based on US profits or deny them bonuses because the company as a whole did not have any profits to share? The difficulty of resolving this question is especially notable because it could not be easily answered despite Lincoln Electric's strong culture and long-term relationships with its employees (Gibbons and Henderson 2012). Similarly: managers seeking to copy Toyota's production system will struggle to pre-specify the conditions under which employees ought to pull the Andon cord that shuts down the line, and the conditions under which they will punish employees for misusing it (Gibbons and Henderson 2012); partners in a strategic alliance to develop a new product will struggle to pre-specify what resources they must each contribute given any likely development in research or market conditions (Robinson and Stuart 2007); manufacturers will struggle to pre-specify all quality, logistics, continued improvement and innovation requirements they expect their suppliers to meet (Bernstein 2015); and, academics seeking to co-author a paper might struggle to pre-specify how work is to is be distributed, on the methods, frequency and forms of their communication, and on the process by which important decisions are to be made.

In the absence of such specific agreements or *global* norms of cooperation defining the proper way to behave, exchange partners must rely on their own norms of cooperation to figure

out what constitutes cooperative action. As a result, having shared norms of cooperation is crucial for successful exchange. Without them, exchange partners may misconstrue a cooperative action as defection, and defect in return. Worse yet, the mere expectation that the relationship may break down due to differences in norms of cooperation will diminish the value of the relationship and encourage defection (Gibbons and Henderson 2012). This is a common problem in many forms of exchange. Even exchanges that at first blush appear to be completely straightforward may rely on unspoken understandings of what cooperation entails, and break down when one of the exchange partners violates them. For example, Canales and Greenberg find that different loan-officers in the same micro-credit institution apply different relational-styles to simple credit transactions. Some stick to the letter of contract and the institution's guidelines. Others are more flexible, but insist on embedding themselves in their clients' lives to get a better understanding of their creditworthiness. Canales and Greenberg find that default rates increase when a loan officer applying one relational style replaces a loan officer that applies another, regardless of the direction of the change (Canales and Greenberg 2016). The importance of relational styles – norms on how exchange partners ought to behave – is notable in this context given the nature of the exchange. These are simple loan contracts with pre-specified payment plans, yet their success or failure depends on whether or not the loan officer and borrower share the same norms of cooperation.

Scholars in sociology, economics and the law have recognized the importance of shared norms of cooperation. Gibbons and Henderson (2012) were first to discuss their importance for successful exchange, and demonstrate how shared norms of cooperation between exchange partners, or *clarity* in Gibbons and Henderson's terminology, underlie a wide range of managerial practices: from bonuses in Lincoln Electric to the Toyota Production System and Science-Driven drug discovery at Merc (Gibbons and Henderson 2012). Kreps conceptualizes organizational culture as a focal point that allows organizational members to reach a shared understanding of what each ought to do (Kreps 1990). Uzzi describes the importance garment designers place on reaching a shared understanding of difficult-to-communicate "styles" with their manufacturers (Uzzi 1997). Williamson posits that one benefit of hierarchy is its ability to establish a "rich and common rating language" by which employees can be evaluated, a difficult task "where the judgments to be made are highly subjective." (Williamson 1975, 78). And,

Bernstein documents the great lengths to which large Midwestern original equipment manufacturers go to build shared norms of cooperation with their suppliers. Manufacturers offer classes designed to clarify their requirements and unwritten expectations, demand that suppliers' key personnel participate in such programs, provide frequent feedback on whether suppliers meet their expectations, consult with poorly performing suppliers on how their requirements are best met, and limit suppliers to small transaction until they can be sure they have reached a common understanding of what cooperation entails (Bernstein 2015).

Many of these scholars offer a solution to the problem of building shared norms between exchange partners. Hierarchy (Williamson 1975), organizational culture (Kreps 1990), embedded ties (Uzzi 1997), and extensive training, iteration and feedback (Bernstein 2015) are all proffered as means to build shared norms of cooperation. Yet, these insightful solutions are difficult to implement and dyadic or organizational in their scope. They leave open a critical question: if it is so hard for exchange partners to distinguish cooperation from defection, how can outsiders who are not party to the proffered solutions do so? To wit, given that an exchange can break down due to a misunderstanding as well as malfeasance, what can Chris infer about his likelihood of successfully cooperating with Bob, from observing the outcome of an exchange between the Bob and Anne? Or, from receiving a reputational signal from Anne about Bob? Relatedly, what does the difficulty of drawing informative inferences from reputation signals imply for our ability to use reputation to enforce norms of cooperation and facilitate exchange?

A first cut at answering these questions starts with the observation that while any given set of exchange partners might reach a shared understanding of the norm of cooperation, different sets of exchange partners might converge on different norms, just like the loan officers and borrowers studied by Canales and Greenberg did. Both experimental and theoretical research has shown that shared understandings about the proper way to behave can vary across different sets of exchange partners. Using lab experiments, Weber and Camerer (2003) and Selten and Warglien (2007) show that when a principle can observe a randomly chosen state of the world and communicate it to an agent who must then act appropriately, different principle-agent pairs develop different shared languages even though they were exposed to the same environment but for the random realization of the state of the world (Weber and Camerer 2003; Selten and Warglien 2007). Chassang (2010) obtains similar results using a formal model that unlike Weber

and Camerer, and Selten and Warglien, incorporates the conflict of interest that is inherent to exchange. In Chassang's model agents choose between costless unproductive actions – shirking – and costly actions that are productive with a probability. Principles observe actions and outcomes, but not whether the action was productive ex ante. Since whether a productive action produces a productive outcome is a matter of chance, different principles learn that different actions are productive. Learning often stops well short of the full set of productive actions, as agents have an incentive to choose actions that have proven to be productive in the past over more productive actions that may, by chance, lead to an unproductive outcome and retaliation from the principle (Chassang 2010).

The upshot is that while exchange partners can reach shared norms of cooperation, norms can vary across different sets of exchange partners. Yet if norms vary across actors, then so must the inferences they make from reputational signals. Returning to the example above, what can Chris learn from a hearing from Anne that Bob has acted opportunistically? Chris can surmise that something went wrong in that relationship, but how is Chris to know whether the relationship broke down because Bob acted in bad faith or because a misunderstanding led Anne to believe that he did? More importantly, what can Chris learn about the likelihood that Bob will successfully cooperate with him? The answers to these questions depend on Chris' knowledge of the norms of cooperation Anne used to evaluate Bob's behavior. If Chris has reason to believe he and Anne use similar norms, he will likely find Anne's reputational signal about Bob highly informative. Regardless of whether the relationship broke down due to Bob's malice or a mismatch of norms, Chris would be wise to conclude that Bob is unlikely to act in a way that Chris will find cooperative. Conversely, if Chris knows nothing of the norms used by Anne to evaluate Bob's behavior, the reputational signal produced by Anne will be far less informative to him. Chris will surmise that Bob either acted opportunistically or did not share the same norms as Anne, but will gain little information about whether Bob is likely to successfully cooperate with him. And, what is true of negative reputational signals is true of positive ones as well. Learning that Anne and Bob have successfully cooperated will be highly informative to Chris, if he has reason to believe he shares the same norms as Anne. A successful exchange between Anne and Bob will indicate both that Bob acted in a way that Anne (and thus Chris) would consider cooperative, and that Bob and Anne (and thus Bob and Chris) likely share norms of

cooperation. The existence of shared norms between Bob and Chris will increase the likelihood that an exchange between them will be successful. Conversely, if Chris had no information about Anne's norms, learning that Bob has successfully cooperated with her will tell Chris that Bob acted cooperatively towards Anne, but not whether Bob is likely to act in a way that Chris will consider cooperative.

Differently put, the informativeness of a reputational signal depends on the extent to which the receiver of the signal (Chris) believes the sender of the signal (Anne) shares the same norms as he does. The more the receiver believes the sender of the signal was using the same norms he himself would use to evaluate the subject (Bob), the more informative the signal will be. Thus, reputational signals from strangers (and aggregations thereof) will be informative to the extent that the senders of the signals and their users share the same norms of cooperation. Differently put, *global* reputation is informative only with respect to *global* norms.

## 3. Norms of Cooperation and Networks

While shared norms of cooperation are not always *global* we have reason to believe they are not limited to pairs of exchange partners or organizations. The very solutions to the problem of shared norms discussed *above* suggest that norms of cooperation are *local* to social network neighborhoods. That is, that the likelihood that two actors share the same norms of cooperation increases with their proximity to each other and the number of shared contacts they have. Consider first Uzzi's account of relationships between organizations in New York City's women's better-dress industry. Uzzi argues that one benefit of embedded ties is that they facilitate the transfer of fine-grained proprietary and tacit information. This information transfer helps exchange partners better understand each other's expectations about what constitutes satisfactory performance (Uzzi 1997, 45–47). Similarly, Bernstein documents how original equipment manufacturers build shared understandings with their suppliers over time using specialized training programs, boots-on-the ground consulting, and iterative feedback (Bernstein 2015, 478–81). Gilson, Sabel, and Scott (2009, 2010, 2013) make similar arguments positing that formal contracts can help facilitate information transfer, which over time will allow exchange partners to learn about each other in a process they call "braiding." Gibbons and Henderson (2012) are catholic to the means by which exchange partners create shared norms but suggest

that relationships lacking shared norms are likely to break down. Together these scholars suggest that a successful history of exchange, and especially successful repeated exchange, indicates or helps create shared norms of cooperation. Finally, Mcpherson, Smith-lovin, and Cook (2001) reach a similar conclusion following a causal path - homophily. They show that actors are homophilous with respect to their values – *i.e.* that they choose to interact and build ties with others with similar norms.

Moving beyond the dyadic context, the fact that actors usually engage in exchange with more than one partner implies norm transitivity. If a successful exchange between Anne and Bob, creates, or indicates the existence of, a shared norm of cooperation between them, and if a successful exchange between Anne and Chris creates or indicates the same, then it likely that there is some overlap between Bob's and Chris' norms of cooperation. As a result, Chris will find reputational signals about forms of exchange for which norms of cooperation vary to be far more informative when they originate from Anne or Bob than from a socially distant actor. That being said, a successful exchange or long-term relationship between Anne and Bob does not mean that their norms of cooperation are identical. Norms of cooperation governing events that did not occur may never be discussed or tested for compatibility. Anne will not misconstrue a cooperative action by Bob to be an act of defection if the circumstances leading Bob to take that action never arise. As a result, the degree of similarity in norms of cooperation between any two actors is likely to decrease as network distance increases. Chris' norms of cooperation are only partially similar to Anne's whose norms are only partially similar to Bob's. In other words, norms of cooperation are *local* to the network setting. Their similarity declines with network distance, and as a result, so does the informativeness of reputational signals.

An even more forceful argument about the relationship between network structure and norm distribution comes from the study of social networks. Network scholars argue that the denser the network, the more shared contacts actors have, and the more ties along which influence travels and ideas about the proper way to behave are discussed, negotiated, and crystalized. As a result, the denser the network, the more shared contacts actors have, the greater the likelihood they will develop shared norms and ways of thinking about the world even if none had previously existed (Burt 1992, 2005; Granovetter 2005). Indeed, the idea that network closure – dense ties within a group – facilitates not only the enforcement of norms of cooperation but also their uniformity has

long been present in the literature. Ellickson described how dense ties within the close-knit social groups of Shasta County landowners "help members share information about previous consensual economic and social exchanges" and thereby, develop an "objective valuation system" (Ellickson 1991, 181); and Coleman describes how network closure allows members of closed groups to "come to a consensus about standards and sanctions" (Coleman 1988, S107). Centola and Baronchelli reach a similar conclusion in a lab experiment finding, among other things, that local conventions emerge within clusters in the network (Centola and Baronchelli 2015).

Together these arguments suggest that the structure of the network of exchange, not just individual exchange relationships within it, affect the distribution of norms of cooperation. Actors are more likely to have similar norms of cooperation the closer they are to each other in the network, and the more contacts they share with one another. As a result, norms of cooperation are *local* to the network.

## 4. Bringing it all together: How and When Networks Facilitate Cooperation

> "[Y]ou have reputation in each group with which you are affiliated... The more groups with which you are affiliated, the more alternative reputations you have"
>
> Burt 2005, page 108

*Local* norms of cooperation breed *local* reputations. *Local* reputations breed *local* norm enforcement. And, *local* norm enforcement breeds *local* cooperation. To see why, recall that reputational signals are more informative to the receiver (Chris) when he shares the same norms of cooperation as the sender (Anne). Since norm similarity is *local* to social network neighborhoods, it follows that the informativeness of reputational signals is as well. In other words, reputational signals from proximate others, or fellow members of a densely interconnected group, are more informative to Chris because they come from someone who used the same norms of cooperation Chris would in making an evaluation. By contrast, reputational signals from socially distant others are far less informative to Chris, because the norms of cooperation they used to make their evaluation likely differ from Chris's norms. Finally, since

reputation is *local* so are norm enforcement and cooperation. Chris cannot punish, or take into account the additional risk of dealing with Bob, if he finds Anne's claim that Bob had acted opportunistically uninformative as to whether Bob acted in a way that violated Chris' norms of cooperation. In other words, the *local* nature of reputational signals implies that actors who are proximate to the sender, or are part of the same densely interconnected group, will be more likely to find reputational signals about defection informative and respond accordingly. Consequently, the cost of opportunistic behavior will be higher, and the likelihood of a norm violation lower, when exchange partners (a) have many shared contacts; or (b) are members of the same densely interconnected group. Knowing or intuiting the *above*, actors would prefer to deal with proximate others, or with those with whom they share common contacts.

For the very same reasons, *global* norms of cooperation breed *global* reputations. *Global* reputations breed *global* norm enforcement. And *global* norm enforcement breeds *global* cooperation. When norms are standardized or *global*, reputational signals from strangers are (nearly) as informative as reputational signals from network contacts. Their aggregation and distribution through institutions like modern RAPs, or medieval Merchant Courts is more informative still (Milgrom, North, and Weingast 1990; Kollock 1999; Dellarocas 2003; Diekmann et al. 2014). Indeed, it is far easier and more informative to check a used car sellers' rating on eBay, or a driver's rating on Uber, than it is to survey your friends for their used car purchasing experiences. Moreover, since reputational signals about norm violations are easily accessible*,* and are informative *globally* regardless of network position, everyone can punish (or price in the risk of dealing with) an actor with a history of malfeasance. As a result, the cost of opportunistic actions is independent of network structure, and so is the probability that such action would occur. Knowing, or intuiting this, actors will be willing to deal with socially distant strangers, as is evidenced by the multitudes purchasing used cars online, or entering unmarked cars driven by complete strangers.

Only if we recognize the role that norms of cooperation play in mediating the ability of both social networks and market reputation (and thus RAPs) to enforce norms of cooperation and facilitate exchange can we understand when and between whom cooperation is likely to occur. By placing boundary conditions on the ability of social networks and market reputation to facilitate exchange, the distribution of norms of cooperation sheds light on the limits of networks

and RAPs alike. First, the ability of RAPs to informatively aggregate reputational signals is dependent on the existence of standardized, *global*, norms of cooperation. Consequentially, RAPs will emerge and effectively facilitate exchange when norms are *global*. The more varying the norms of cooperation, the less informative are aggregated reputational signals from socially distant actors, and the less likely are RAPs to facilitate cooperation, impacting the viability of the business model. It is not surprising that existing RAPs focus predominantly on standardized exchanges, such as consumer products, rather than unstandardized exchanges such as strategic alliances, executive hires, or complex supply chain relationships. Conversely, social networks can only facilitate exchange over and above market reputation when norms of cooperation are *local* to social network neighborhoods. When norms are *global*, RAPs can informatively aggregate reputational information, allowing actors to seek out and cooperate with exchange partners independently of network structure.

Evidence and theoretical claims of the ability of networks to facilitate cooperation today should be viewed in this light. Network closure – *i.e.* dense intragroup ties – can lead group members to act more cooperatively towards one another (vs. outsiders) to the extent norms of cooperation are *local* to the group (cf. Coleman 1988; Greif 1989, 1993; Portes and Sensenbrenner 1993). When norms of cooperation are *local*, reputational signals between members of a densely connected group will be far more informative than reputational signals from outsiders. As a result, group members will be less likely to heed an outsider's complaint of opportunistic behavior, because such complains are likely to be uninformative as to whether the group's norms have been violated. Conversely, group members will heed a complaint from an insider, because they will be able to easily recognize the alleged act of defection as a violation of the group's norms. Similarly, network proximity and density can facilitate cooperation between investors and entrepreneurs, diamond and stock option traders, and partners to strategic alliances to the extent the norms of cooperation underlying these exchanges are *local* (cf. Baker 1984; Bernstein 1992; Gulati 1995; Stuart and Sorenson 2005; Robinson and Stuart 2007). Consequently, the efficiency of network governance (vs. governance through markets or hierarchies) and its effect on organizations' make-or-buy decisions also depends on the *local* nature of norms (cf. Granovetter 1985; Powell 1990; Jones, Hesterly, and Borgatti 1997). Likewise, networks are able to facilitate cooperation and trust in society writ large only for forms

of cooperation for which norms of cooperation vary in the population (cf. Raub and Weesie 1990; Buskens and Raub 2002; Gallo and Yan 2015; Melamed, Harrell, and Simpson 2018). Finally, networks are no longer likely to play a role in facilitating cooperation in standardized forms of exchange such as the consumer purchases discussed by DiMaggio and Louch (1998). Their finding that consumers are twice as likely to purchase a used car from a network contact (or a contact thereof) than a stranger, is unlikely to hold now that used cars are bought and sold on eBay as well as other platforms, often without the buyer inspecting the car prior to delivery.

Unsurprisingly, empirical evidence of the effect of networks on cooperation in the age of RAPs come from exchanges for which norms of cooperation vary across exchange partners. Midwestern original equipment manufacturers in Bernstein's study are aware that norms of cooperation differ and invest considerable resources in building shared norms with their suppliers. They offer suites of manufacturer-specific training, classes, webinars and PowerPoint presentations designed to explain their requirements and unwritten expectations as well as highlight those requirements they care more deeply about. These training programs take as long as three months to complete and are so intensive that they are sometimes referred to as Supplier College or University. To further clarify what they mean by cooperation, manufacturers provide suppliers with frequent detailed feedback, and consult with poorly performing suppliers on how their requirements are best met (Bernstein 2015, 578–386). Similarly, the norms of cooperation underlying the strategic alliances between pharmaceuticals and biotech firms studied by Robinson and Stuart (2007) likely vary as well. As Robinson and Stuart point out, parties to such strategic alliances struggle to pre-specify the features of the technology they wish to develop, and the commercial and regulatory contingencies that might arise. And while they are often able to specify the amount of scientific labor that each must invest in the project, they often cannot and do not specify how the quality of the labor will be measured or verified (Robinson and Stuart 2007, 245). In the absence of specific agreements on such key aspects of relationships, parties to strategic alliances in this setting must resort to their norms of cooperation to evaluate actions as cooperative or not. Given the complexity of these contracts and the relative youth of the industry at the time of the study, it seems safe to assume that there were no *global* norm parties could rely on to fill in their incomplete contracts.

Finally, there may be other reasons why members of densely interconnected groups are less likely to act opportunistically towards each other. Densely connected groups are often comprised of embedded ties that are overlaid with friendship, kinship or other social bonds. These bonds increase the value of relationships, thus discouraging opportunistic actions that might jeopardize them (Granovetter 1985). Losing an exchange partner who is also a friend is costlier than losing an exchange partner who is a stranger. Having word of your misdeeds spread among your friends puts more valuable relationships at risk than having the same story spread amongst strangers. Similarly, network closure may facilitate group demarcation for multilateral relational contracts (Levin 2002), much like Zuckerman suggests firm boundaries do (Zuckerman 2014). Note, however, that neither of these two mechanisms can explain why norm enforcement will be stronger and cooperation will be more likely within densely connected groups. While actors might fear that word of their misdeeds will spread among their friends, there is no reason to assume that group members will only learn about misdeeds towards other members of the group. In the age of RAPs and the call out/cancel culture, word of misdeeds against strangers travels fast and far. Likewise, while group membership can be used to demarcate the boundaries of a multilateral relational contract, there are other, likely more efficient ways to demarcate the contract's scope. Bernstein, for example, demonstrates how OEMs accomplish such demarcation by formally dividing suppliers into tiers, each implying a different set of commitments (Bernstein 2015, 608); and Zuckerman argues that organizational boundaries and employment status (permanent vs. temporary) accomplish the same (Zuckerman 2014).

## 5. Additional Boundary Conditions

It is important to note one additional boundary condition on the ability of networks to facilitate cooperation over and above RAPs. Even when norms of cooperation are *local* it may still be possible for RAPs to learn the norms of individual users. RAPs may use that knowledge to provide personalized aggregate reputational information that upweights signals from users with similar norms of cooperation. The aggregated reputational signal provided by such a platform may be more informative then signals from network contacts, thereby potentially allowing for *global* rather than *local*, norm enforcement and cooperation.

While some RAPs may be able to learn the norms of their users, that is not an easy task, and there are good reasons to think only few RAPs will be able to do it. First, to accomplish this task RAPs need to be able to go beyond matching exchange partners and actually observe both the content and outcome of each exchange. Dating apps, for example, may observe which users match with each other, but often cannot observe whether they met in person, developed a relationship, and if so how that relationship unfolded. Second, even if RAPs were able to collect post-match information, users will often have a strong incentive to keep that information private. Much like in the case of dating, partners to a strategic alliance, or managers allocating discretionary bonuses will want to keep the details of their interactions secret, to protect themselves from legal liability and to protect trade secrets. As a result, it is unlikely that RAPs will be able to collect enough information to deduce their norms.

## 6. Summary and Contributions

Network scholars have long argued that network proximity and density promote norm enforcement and cooperation over and above market reputation by facilitating the spread of reputational information (see for example, Granovetter 1985; Coleman 1988). Their basic insight–that reputation and thus, norm enforcement and cooperation are *local* to social network neighborhoods–has been used to explain a variety of phenomenon, including actors' choice of exchange partners and decisions to cooperate or defect in settings as varied as medieval trade and venture capital investments, organizations' make-or-buy decisions, the formation of industrial clusters, norm-enforcement in densely interconnected groups, and the emergence of trust and cooperation in society writ large (see for example, Granovetter 1985; Coleman 1988; Greif 1989; Sorenson and Stuart 2001; Stuart and Sorenson 2005; Raub and Weesie 1990; Bernstein 2018). Yet, despite the wide-ranging evidence that network proximity and density can facilitate cooperation, there is reason to doubt networks' continued ability to do so. The rise of reputational aggregation platforms (RAPs) aggregating reputational signals from socially distant actors to facilitate exchange, such as Amazon, Uber, and Yelp, puts into question the assumption of *local* reputation. RAPs facilitate cooperation by collecting and distributing *global* reputational signals between strangers, independently of network structure (Dellarocas 2003; Diekmann et al. 2014). Their ability to support more and more forms of exchange undermines the theoretical

foundation of the network effect on norm enforcement and cooperation. At the same time, RAPs have not spread to all domains, raising questions about the limits of RAPs' use.

This paper delineates the conditions under which reputation and cooperation are *local* or *global*, thus setting boundary conditions on the ability of networks and market reputation (and thus RAPs) to facilitate exchange. Its key insight is that the informativeness of a reputational signal to the receiver is a function of the extent to which the sender and the receiver share the same norms as to what cooperation entails (that is, shared norms of cooperation). While some forms of exchange, such as the sale of consumer goods, rely on standardized *global* norms of cooperation, there are many economically significant exchanges for which *global* norms are insufficient to define what constitutes cooperation. Academics seeking to co-author a paper, partners to a strategic alliance, or managers with employees who exercise discretion, can neither agree ex-ante on what each ought to do in any likely eventuality, or rely on *global* norms such as "a man's word is his bond" to guide their actions. In the absence of *global* norms of cooperation or specific agreement, exchange partners are often left with nothing but their own norms to evaluate whether a given action was an act of cooperation or an act of defection. Successful cooperation becomes dependent on exchange partners' ability to reach a shared norm of what cooperation means (Gibbons and Henderson 2012).

Although exchange partners can do so in a variety of ways, these solutions do not extend to actors not party to the exchange. The resulting variance in norms of cooperation has important implications for the diffusion of reputational information, the enforcement of norms, and cooperation. When norms of cooperation vary, reputational signals communicating exchange partners' evaluations of each other will not be informative to actors who do not share the same definition of what cooperation means as the sender of the signal. In other words, variance in norms of cooperation reduces the informativeness of reputational signals, thereby reducing the informativeness of market reputation (and thus RAPs) and its ability to enforce norms against malfeasance and promote cooperation. Nevertheless, when norms of cooperation vary in the population they are likely to be more homogenous between actors who are proximate to each other in the social network and actors who have shared contacts. That is so because a history of successful exchange can create or indicate the existence of shared norms of cooperation (Uzzi 1997; Gilson, Sabel, and Scott 2009, 2010, 2013; Gibbons and Henderson 2012; Bernstein

2015), because value homophily implies norm similarity among proximate actors (Mcpherson, Smith-lovin, and Cook 2001), and because network density can help create shared norms within interconnected groups (Burt 1992, 2005; Granovetter 2005; Centola and Baronchelli 2015). For all these reasons, when norms of cooperation vary they are likely to be *local* to social network neighborhoods. And when norms are *local* so is reputation, norm enforcement and cooperation. Understanding the role norms of cooperation play in the distribution of reputational signals puts a boundary condition on the ability of both networks and RAPs to enforce norms against malfeasance and to facilitate cooperation. Unstandardized exchanges create the opportunity for *local* norms of cooperation to emerge and with them *local* reputations, *local* norm enforcement, and *local* cooperation. Standardized exchanges with *global* norms of cooperation allow for RAPs to emerge and effectively disseminate *global* reputational information, thus allowing for *global* cooperation.

The continued relevance of prior findings of a network effect on norm enforcement and cooperation in the age of RAPs should be viewed in this light. Network proximity and density continue to facilitate cooperation and the emergence of trust for unstandardized exchanges (cf. Raub and Weesie 1990; Buskens and Raub 2002; Gallo and Yan 2015; Melamed, Harrell, and Simpson 2018), including those between manufacturers and their suppliers (cf. Bernstein 2015); investors and entrepreneurs (cf. Stuart and Sorenson 2005); and partners to strategic alliances (cf. Gulati 1995; Walker, Kogut, and Shan 1997; Robinson and Stuart 2007). Similarly, network proximity and density should continue to facilitate the network form of organization, thus affecting organizations' make-or-buy decisions, with respect to exchanges that are characterized by *local* norms of cooperation (cf. Granovetter 1985; Powell 1990; Jones, Hesterly, and Borgatti 1997). Furthermore, since many aspects of investments in new ventures are unstandardized, networks will still play a role in facilitating the founding of new ventures and the creation of industrial clusters (cf. Sorenson and Audia 2000; Sorenson and Stuart 2001). By contrast, networks are no longer likely to facilitate cooperation in standardized exchanges such as the sale of consumer goods as well as the RAPs can (cf. DiMaggio and Louch 1998).

This paper also advances our understanding of reputation by problematizing the informational content of reputational signals. Prior literature has focused primarily on the trustworthiness of the signal's source and the signal's diffusion, but not on the inferences that

those receiving the signal could draw (see for example, Granovetter 1985; Coleman 1988; Greif 1989, 1993; Burt 1992, 2005). This paper argues that the inferences drawn by receivers of reputational signals, and thus their information content, is a function of receivers' beliefs about the norms used by the senders of the signal in making their evaluation. When norms of cooperation are *global,* reputational signals are informative regardless of origin. Conversely, when norms of cooperation are *local,* reputational signals from socially distant actors are relatively uninformative. Hearing from Anne that Bob acted in bad faith is uninformative to Chris as to the desirability of a potential exchange with Bob, if Chris has no reason to believe Anne used the same norms he would in making her evaluation. What may be bad faith for Anne can be perfectly cooperative for Chris and Bob. Anne's signal will tell Chris little about whether Bob is likely to act in a way that Chris will find cooperative. Far more informative for Chris is to hear from someone who Chris has reason to believe shares the same norm of cooperation as him. Hearing that Bob defected in an exchange with such a person would be highly informative to Chris. Regardless of whether the exchange failed due to Bob's malfeasance or a mismatch in norms, Chris will be able to surmise that Bob will act in ways that appear opportunistic to him.

Finally, on a more practical note, the mediating effect of the distribution of norms on networks' effects on cooperation suggest a new business model for aggregators of social network data – leveraging that data to facilitate exchanges characterized by *local* norms of cooperation. To give but one example, rather than mimicking Craigslist or Amazon, Facebook might be wise to focus its new Marketplace on forms of exchanges for which it can leverage its relational data to generate a competitive advantage over RAPs, by creating a network-weighed reputational signal; namely, exchanges in which norms of cooperation are *local*, and networks are most powerful.

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