Probing the Links Between Trustworthiness, Trust, and Emotion: Evidence From Four Survey Experiments

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Probing the Links Between Trustworthiness, Trust, and Emotion: Evidence From Four Survey Experiments

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Abstract

An outstanding puzzle in the social sciences remains about the forms of perceived trustworthiness sufficient to produce trust. Survey experiments adjudicated between four models of the trustworthiness-trust link—social constraints, encapsulated interests, goodwill, and virtuous dispositions—and tested novel hypotheses about other-praising emotions (admiration and gratitude) as mediating effects. Two large convenience samples of Amazon.com Mechanical Turk workers yielded strong support for all four perspectives as well as novel predictions about the inequality of effects (goodwill = virtuous dispositions > encapsulated interests > social constraints). Two additional large random samples of public university undergraduate students replicated prior findings and provided evidence for other-praising emotions as plausible mechanisms that connect trustworthiness to trust, with larger mediating effects for goodwill and virtuous dispositions than for encapsulated interests and social constraints. Results indicate that trust can spring from multiple forms of perceived trustworthiness and that affective mechanisms play an important role in its development.

Keywords

trustworthiness, trust, other-praising emotions, survey experiment

Sociologists long ago identified trust as a vital element of social life (Blau 1964; Durkheim [1893] 1984; Simmel 1978) and, more recently, as a basis for the chemistry of communities, markets, and hierarchies (Coleman 1990; Granovetter 1985). Some argue that trust is particularly relevant whenever people encounter the uncertainties and vagaries of modern society (Cook, Hardin, and Levi 2005), from consulting lawyers and doctors to hiring financial advisers and even babysitters. Under such conditions, solidary and cohesive communities are possible with trust, while social disorder and conflict are imaginable without it (Putnam 2000).

The notion that trust facilitates social and economic exchange is a longstanding assumption in the social sciences. But

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less well understood are the forms of perceived trustworthiness sufficient to produce trust, with proposed answers conspicuously dependent on one's discipline. Political scientists and economists, for instance, tend to espouse the role of social constraints or the necessity of encapsulated interests in securing trust, while sociologists, philosophers, and administrative scientists traditionally underscore perceived goodwill or virtuous dispositions in the creation of trust. In the social constraints view, social devices external to an exchange relationship that align the interests of two actors, such as binding contracts and legal authorities, are sufficient to produce trust (Greif 2006; North 1990), while a trustee's interests in maintaining a relationship into the future—which creates an incentive for trustworthiness internal to an exchange relationship—are necessary for trust to develop in the encapsulated interests view (Cook et al. 2005; Hardin 2002). The goodwill view, on the other hand, emphasizes a trustee's interest in an exchange partner as an end-in-themselves—genuine concern and regard for a truster's interests—in the creation of trust (Baier 1986; Mayer, Davis, and Schoorman 1995; Molm, Schaefer, and Collett 2007), while a trustee's concern and regard for everyone's interests is at the heart of the virtuous dispositions view (Andreoni and Miller 2002; Potter 2002).

Despite the prevalence of these views, their comparative effects on trust have not been explored. In the present article, I dissect the causal relation between trustworthiness and trust by comparing and contrasting classic forms of commitment found in the social sciences. That is, instead of assuming the concept of trust as theoretically given, I manipulate perceptions of not just *whether* but *how* and *why* a trustee is committed and motivated and adjudicate between the social constraints view, encapsulated interests view, goodwill view, and virtuous dispositions view of trust and trustworthiness. Below, I outline how I accomplish this task.

In an effort to synthesize the literature, I argue that these four perspectives differ along two analytical dimensions concerned with how motivations—a key element of trustworthiness—are perceived (Falk, Fehr, and Fischbacher 2008; Rabin 1993): *instrumental* (interest in an exchange partner or exchange relationship is a means to an end) versus *expressive* (interest in an exchange partner or exchange relationship is an end in itself) and *external* (interest in an exchange partner or exchange relationship comes from outside of—or is exogenous to—the exchange relationship) versus *internal* (interest in an exchange partner or exchange relationship comes from inside of—or is endogenous to—the exchange relationship). Drawing on Russell Hardin's (2002) concept of encapsulation, I expect all four views of perceived trustworthiness to produce trust, with the magnitude of effects dependent on whether a view emphasizes expressive (versus instrumental) motivations and/or internal (versus external) motivations (Lawler and Yoon 1993, 1996). In other words, goodwill and virtuous dispositions (internal and expressive motivations) should yield greater trust than encapsulated interests (internal and instrumental motivation), which in turn should produce greater trust than social constraints (external and instrumental motivation).

Departing from Hardin, I argue that what accounts for these differences in magnitude are not interest-based accounts but affective mechanisms (Lewis and Weigert 1985; McAllister 1995) in the form of other-praising emotions. I propose that other-praising emotions such as admiration and gratitude (Algoe and Haidt 2009), which are positive emotions

experienced by witnessing or directly benefiting from the exemplary actions of others, mediate the relation between trustworthiness and trust. In terms of magnitude, I argue that the indirect effects are greater for commitments derived from *expressive* motivations *internal* to an exchange relationship than for *instrumental* motivations either *internal* to or *external* to an exchange relationship.

The results of four survey experiments of simulated car repair and group project scenarios yielded strong support for my predictions and produced two key findings. First, I show that all four types of perceived trustworthiness foster trust but that some forms are stronger than others (goodwill = virtuous dispositions > encapsulated interests > social constraints). Second, I demonstrate the efficacy of other-praising emotions as causal mechanisms that connect trustworthiness to trust. In particular, the results reveal that gratitude and admiration mediate (almost fully) the effect of goodwill and virtuous dispositions on trust but only partially so for encapsulated interests and inconsequentially so for social constraints. This research is significant as it dissects an important outstanding issue in the social sciences—what forms of perceived trustworthiness produce trust and how—and furthers our understanding of social cohesion and group solidarity.

THEORY

Trust and Trustworthiness

I treat trust as a cognitive-relational concept (Cook et al. 2005; Hardin 2002; Robbins forthcoming), broadly defined as a belief about another person's trustworthiness with respect to a particular matter at hand that emerges under conditions of unknown outcomes. I define trustworthiness as the capacity *and* commitment of a trustee to fulfill the goals and desires of a truster—where capacity refers to ability and competence and commitment refers to exertion and motivation. According to my conceptualization, A (the truster) trusts B (the trustee) when A believes that B is capable *and* committed to perform matter Y (what A wants B to do) under conditions of unknown outcomes.

Within this equation, scholars of trust are divided over the sources of B's commitment to A, which fall along two distinct analytical dimensions: (1) the extent to which B's trustworthiness is either instrumentally or expressively motivated and (2) the extent to which B's trustworthiness is either externally or internally motivated. Trustworthiness based on instrumental motivations is characterized by an actor's interest in the benefits received or costs avoided from an exchange (Hardin 2002). The goods, services, or outcomes of an exchange compel B to commit to A. In this regard, B's motivation is instrumental in the sense that A (and the A-B exchange relationship) is a means to achieve B's ends. In contrast, an actor's regard and respect for an exchange partner's interests characterize trustworthiness based on expressive motivations (Clark and Mills 1979). Here, expressive motivations represent B's genuine care and concern for A's interests and the continuation of the A-B exchange relationship. Under such conditions, B's motivation is expressive in the sense that A's interests (and the A-B exchange relationship) constitute B's ends, not the goods, services, or outcomes that A or the A-B exchange relationship can provide B.

Trustworthiness that is externally motivated refers to the alignment of actors' interests from incentives exogenous to an exchange relationship (Farrell 2009). Binding contracts, legal regulations, and social norms are all examples of exogenous motivators that compel B to achieve A's interests: The breach of contract, the force of law, and the promise

of collective shaming, respectively, motivate individuals to act in the interests of others. B fulfills his or her obligations to avoid these costs or, in some instances, to obtain benefits; thus, B's interest in A and their exchange relationship (and, conversely, A's interest in B) comes from outside of the A-B exchange relationship. Trustworthiness that is internally motivated, on the other hand, refers to an actor's interest in an exchange partner or relation that is endogenous to the exchange relationship (Yamagishi and Yamagishi 1994). In this way, B is motivated to achieve A's interests not because of exogenously imposed incentives, but because B personally desires goods, services, or other social outcomes A has to offer or because B cares for and is concerned about A's interests. With this type of motivation, actors engage in exchange to achieve their interests or the interests of others. In either case, the motivation to do so is endogenous to A, B, and the A-B exchange relationship.[1]

My distinctions between *instrumental-expressive* motivations and *external-internal* motivations serve as analytical backdrops to the four major views of trust and trustworthiness found in the literature. Theoretically, all four perspectives differ along these two dimensions. And each perspective has the potential to affect the development of trust to greater or lesser degrees depending on their dimensionality.

[1]Note that the *instrumental-expressive* and *external-internal* dimensions are neither independent (expressive motivations internal to an exchange relationship can occur in the presence or absence of external motivators) nor orthogonal (perceived expressive motivations external to an exchange relationship do not exist). As a result, I treat these dimensions as analytical tools used to triangulate the disparate arguments about the trustworthiness-trust link found in the literature.

Perceived Trustworthiness

Social constraints view. The first perspective I review—the social constraints view—underscores trustworthiness based on instrumental motivations external to an exchange relationship. For scholars in this area, commitment can be realized when the interests of A and B are *aligned*, and as a result, any social constraint (or incentive) external to an A-B exchange relationship that motivates B to do Y is sufficient for A to trust B (Greif 2006; North 1990). This "deterrence-based" view of trust includes Hobbesian-style situations where preexistent social constraints external to an A-B exchange relationship motivate B to do Y as well as situations where A or B introduce a social constraint to their exchange relationship (Rousseau et al. 1998). Under these conditions, the costs and benefits associated with social constraints align the interests of both actors and compel the trustee, out of self-interest, to commit to the truster. In other words, trustworthiness based on motivating factors external to the trust relationship is sufficient for B to commit to A and, hence, A to trust B; thus, trust increases with the costs (or rewards) of incentives exogenous to an exchange relationship. The arguments above inform my first working hypothesis:

> *Hypothesis 1 (H1):* Social constraints external to an A-B exchange relationship that align the interests of A and B increase trust.

Encapsulated interests view. The encapsulated interests view suggests that trust emerges when the interests of A and B are *encapsulated*—that is, when B takes A's interests to heart because A's interests, to some extent, become B's interests (Hardin 2002). Classically, these conditions are met when B desires an ongoing exchange relationship with A, when A has favorable knowledge of B's trustworthiness because

A has had direct personal experience with B, or when B is interested in maintaining a reputation for trustworthiness in a network of exchange relations. In Russell Hardin's original formulation, B's interest in being trustworthy toward A is instrumental *and* endogenous to the A-B exchange relationship (Hardin 2002). For Hardin, a long shadow of the future and B's interest in future benefits from A constitute the minimal conditions necessary for trust to endogenously emerge in an A-B exchange relationship (see Hardin 2002:3–10).[2] This is how I hypothesize encapsulated interests and operationalize the encapsulated interests view of trust in the present manuscript.

Hypothesis 2 (H2): Greater interest on the part of a trustee in maintaining an exchange relationship with a truster increases trust.

Goodwill view. An alternative view suggests that trust stems not from instrumental desires but from expressive motivations internal to an exchange relationship, or what some scholars refer to as *goodwill* (Baier 1986; Jones 1996). On the goodwill account of trust and trustworthiness, if A believes that B cares for or is concerned about A's interests, then A trusts B (Mayer et al. 1995; Molm, Schaefer et al. 2007). But if A believes that B will perform matter Y to achieve B's interests, then this instrumental motivation—which is the basis of the social constraints and encapsulated interests views—is insufficient for trust. To put it differently, B must treat A as an end-in-themselves for A to trust B. If B does not treat A as an end-in-themselves but instead treats A as a means-to-an-end, then the goodwill view of trust predicts that A will not trust B. A will trust B *if and only if* A believes that B will act in a trustworthy manner toward A, where B's commitment is expressively motivated by goodwill and benevolence and not simply by encapsulated interests or social constraints. Thus:

Hypothesis 3 (H3): Greater concern and regard for a truster's interests on the part of a trustee increases trust.

Virtuous dispositions view. The virtuous disposition view treats trustworthiness as a *virtue*. On this account, trustworthiness is a trait that virtuous people possess: it is a disposition—or altruistic preference (Andreoni and Miller 2002)—to be trustworthy regardless of the exchange relationship. To illustrate, a professional thief might show goodwill toward his or her sibling and be trustworthy within the scope of their relationship. The thief in this case possesses *specific trustworthiness* (Potter 2002): trustworthiness that is confined to the particular A-B exchange relationship. But generally, we would not describe the thief as someone with a disposition to be trustworthy toward everyone or possess *full trustworthiness*. As Potter (2002:16) writes, a trustworthy person is "one who can be counted on, as a matter of the sort of person he or she is, to take care of those things that others entrust to one." Trustworthiness, then, is a character trait engrained in a trustee—it is a disposition to answer trust appropriately given an actor's capabilities—and trust is realized when A believes that B cares for, or is concerned about, everyone's interests with respect to matter Y (i.e., B is expressively motivated to treat everyone as an end-in-themselves). This

[2]Hardin argues that, while necessary, the alignment of interests—what he refers to as incentive compatibility—is insufficient for the encapsulation of interests. Encapsulation "requires that the trusted values the continuation of the relationship with the truster and has compatible interests at least in part for this reason" (Hardin 2002:5).

line of argumentation produces the following working hypothesis:

> *Hypothesis 4 (H4):* Greater concern and regard for everyone's interests on the part of a trustee increases trust.

Inequality of effects. Regardless of these key distinctions, Russell Hardin (2002) and colleagues (Cook et al. 2005) characterize goodwill, virtuous dispositions, and even some social constraints (Farrell 2009) as conditions for *encapsulation*, which is necessary for trust to develop between two parties. Encapsulation occurs when "the trusted encapsulates the interests of the truster and therefore has *incentive to be trustworthy* in fulfilling the truster's trust" (Hardin 2002:24, emphasis added), where this incentive to be trustworthy is "…grounded in the value of maintaining the relationship into the future" (Hardin 2002:3). Noted previously (see H2), Hardin champions an interest-based model of trust, where A might trust B for very different reasons, but as long as these reasons solidify the process of encapsulation, then trust will follow. Hardin believes then that perceived trustworthiness based on instrumental motivations does not differ in the production of trust from perceived trustworthiness based on expressive motivations: The incentives to be trustworthy are equivalent as both motivations yield a well-defined interest in the continuation of an exchange relationship (Hardin 2002:23–24, 142–143).[3]

[3]In an evolutionary sense, the encapsulated interest account of trust is an ultimate cause: it proposes a set of mechanisms capable of producing trust in a world without institutions populated by egoists. The other three views are proximate causes: goodwill and virtuous dispositions hinge on social preferences, while institutions undergird social constraints. Both—social preferences and institutions—require further explanation (e.g., Andreoni and Miller 2002; Coleman 1990). I thank one of the anonymous reviewers for noting this distinction.

Yet instrumental and expressive motivations are analytically distinct and could produce different levels of trust depending on the mechanisms triggered in their presence or absence. Based on the arguments above, Hardin's notion of encapsulation, and findings from the relational cohesion literature linking expressive value to commitment (Lawler and Yoon 1993, 1996), I expect (a) perceived expressive motivations internal to an exchange relationship to generate the greatest trust (goodwill and virtuous dispositions), (b) perceived instrumental motivations external to an exchange relationship to generate the least trust (social constraints), and (c) perceived instrumental motivations internal to an exchange relationship to yield levels of trust somewhere in between (encapsulated interests). In the next section, I propose affective mechanisms that account for how and why. Thus:

> *Hypothesis 5 (H5):* Goodwill and virtuous dispositions yield greater trust than encapsulated interests, which in turn produces greater trust than social constraints (goodwill = virtuous dispositions > encapsulated interests > social constraints).

Mediating Effects: Other-Praising Emotions

There is little argument in the social sciences about whether trustworthiness begets trust. What remains unresolved are the types of perceived trustworthiness sufficient to produce trust (H1–H4), whether some forms of perceived trustworthiness have stronger effects than others (H5), and—if so—why. I now address issues of why and propose that perceived trustworthiness generates different amounts of trust depending on if and how affective mechanisms are triggered (Lewis and Weigert 1985; McAllister 1995).

Drawing on the other-praising emotions literature in psychology (Algoe

and Haidt 2009), I propose two such mechanisms: gratitude and admiration. Other-praising (or evaluative) emotions are positive emotions individuals experience by witnessing or directly benefiting from the exemplary (and sometimes virtuous) actions of others (Algoe and Haidt 2009). Within this family of emotions, gratitude and admiration are the most common. Gratitude is a positive emotional reaction to the benefits received from others (Tsang 2006). I define it here as the state of being grateful—a warm and friendly feeling toward a benefactor—triggered by the perception that a person has intentionally and voluntarily done a good deed for the self. Admiration, like gratitude, is a positive emotional reaction, but unlike gratitude it is a positive emotional reaction to acts of charity, generosity, and displays of virtue as well as extraordinary displays of skill, talent, and achievement that benefit third parties. It is, in other words, the "warm," uplifting feelings of awe, elevation, and inspiration people experience when witnessing moral and nonmoral excellence (Immordino-Yang et al. 2009).

The sociological exchange literature has long suspected an association between exchange and sentiment (Blau 1964), with recent research showing how positive feelings toward *and* positive assessments of an exchange partner or group—*affective regard* for dyads (Molm, Collett, and Schaefer 2007) and *affective attachment* for networks and groups (Lawler, Thye, and Yoon 2008)—depend on how resources are exchanged, either bilaterally (e.g., negotiated exchange) or unilaterally (e.g., reciprocal exchange), and on how actors view exchange, either cooperatively or competitively (Kuwabara 2011). This literature, however, has a tendency to (a) treat trust, affective regard, and cohesion as indicators of other latent constructs (e.g., social solidarity) without exploring if and how these indicators interrelate (Molm, Collett et al. 2007) and (b) treat affect and emotion as consequences and not as causes (Kuwabara 2011). In spite of this, the literature is relatively mute to the forms of trustworthiness sufficient to generate other-praising emotions and to whether other-praising emotions impact trust.

To fill this gap, I propose that other-praising emotions—gratitude and admiration in particular—mediate the relation between trustworthiness and trust but that some forms of perceived trustworthiness generate stronger feelings of gratitude and admiration than others and, as a result, produce higher levels of trust than others. The plausibility of these hypotheses is based on two lines of research. First, theory suggests that benefits received from others increases other-praising emotions even if a benefactor's motivations are perceived as instrumental (Elster 2007) but that other-praising emotions are strongest when a benefactor's actions are perceived as benevolent and altruistic (McCullough et al. 2001). As a result, I expect perceived trustworthiness based on instrumental motivations internal to an exchange relationship as sufficient conditions for gratitude. Since gratitude is a state of gratefulness for the receipt of good deeds provided by intentional and voluntary acts of benevolence and kindness, I also expect perceived trustworthiness based on expressive motivations to yield the highest levels of gratitude. If the actions of a virtuous benefactor directly affect a beneficiary and not merely third parties, then virtuous dispositions will produce levels of gratitude comparable to goodwill. With respect to admiration, I only expect perceived motivations based on virtuous dispositions to increase admiration: Virtuous actors are

concerned with and have benefited the interests of third parties. Thus:

Hypothesis 6 (H6): Goodwill and virtuous dispositions yield greater gratitude than encapsulated interests, which in turn produces greater gratitude than social constraints (goodwill = virtuous dispositions > encapsulated interests > social constraints).

Hypothesis 7 (H7): Virtuous dispositions yield greater admiration than goodwill, encapsulated interests, and social constraints (virtuous dispositions > goodwill = encapsulated interests = social constraints).

Second, social scientists have established theoretical links between emotions and trust (Lewis and Weigert 1985; McAllister 1995) and have shown that mood, emotions, and hormones can stimulate trust (Dunn and Schweitzer 2005; Lount 2010; Rempel, Holmes, and Zanna 1985). While work has not yet explored if and how other-praising emotions impact trust, theory suggests that positive emotions associated with exchange should increase trust. First, emotions occur prior to higher order cognitions like trust formation (Damasio 1999). Second, positive emotions motivate individuals to build their intellectual, social, and material resources for the future, which broadens and changes an actor's cognitions and beliefs (Fredrickson 1998). Third, positive emotions compel actors to interpret the ultimate source of their feelings as coming from the exchange relationship (Lawler and Yoon 1993, 1996), which heightens cognitive processes of relational attachment such as trust.

From this, I expect gratitude and admiration to increase trust but for gratitude to exert a stronger effect on trust than admiration, as the focal actor for gratitude is the truster and trust is fundamentally relational, while the focal actors for admiration are third parties. Altogether, the literature and arguments outlined above yield the following hypothesis:

Hypothesis 8 (H8): Gratitude increases trust to a greater extent than admiration (gratitude > admiration).

STUDIES 1A AND 1B

The purpose of the first two studies is to investigate the impact of perceived trustworthiness on trust and the robustness of H1 through H5 across different scenarios and samples. To this end, two survey experiments—one consisting of a car repair scenario (Study 1a) and the other of a group project scenario (Study 1b)—were conducted on Amazon.com's Mechanical Turk (MTurk).

Methods

Design, Participants, and Procedure. To examine the causal relation between perceived trustworthiness and trust, I use a factorial survey experiment design (Auspurg and Hinz 2015). The vignette factorial survey approach presents respondents with hypothetical scenarios containing situational and relational conditions of theoretical importance. With this method, a researcher can systematically manipulate features of a social context that theoretically impact a judgment-making process of interest.

For the present study, I have created two hypothetical scenarios—a car repair scenario and a group project scenario—each consisting of ten dimensions, where subjects are asked the extent to which they trust a hypothetical auto mechanic or group project member. In creating the vignette scenarios and dimensions, I was guided by the trust literature, my hypotheses, and a pilot study. The two scenarios were developed to maximize differences across a number of theoretically relevant parameters (e.g., bilateral versus unilateral exchange) while maintaining congruency of dimensions between scenarios.

The two scenarios were also used to explore the robustness of findings under different conditions—such as the principal-agent problem (car repair scenario) versus the collective action problem (group project scenario)—rather than test hypothesized differences in parameter estimates across scenarios. For a discussion of the research design's merits and strengths, see Robbins (2016); for an assessment of the design-based assumptions, see the author's website (www.blainerobbins.com).

Each hypothetical scenario features a 5 (age: 20, 30, 40, 50, or 60 year old) × 4 (race: white, black, Hispanic, or Asian) × 2 (gender: male or female) × 2 (reputation: no reputation or positive reputation) × 3 (halo: blank, bad used Computer, or good used computer) × 2 (competence: blank or competent) × 2 (exertion: blank or hard-working) × 6 (perceived internal motivations: uncooperative, no prior interaction, prior interaction, encapsulated interests, goodwill, or virtuous dispositions) × 3 (contract: blank, nonbinding contract, or binding contract) × 3 (regulation: no regulations, nonmonetary regulations, or monetary regulations) multifactorial vignette design, which yields a factorial object universe of 51,840 ($2^4 \times 3^3 \times 4^1 \times 5^1 \times 6^1$) unique vignettes where all possible combinations of dimensions were included in the factorial object universe.

I administered a web-based version of my survey experiments to MTurk workers during the fall of 2013. A total of 1,388 MTurk workers participated in Study 1a (52 percent male; mean age = 32.61, *SD* = 11.51), while 1,419 MTurk workers participated in Study 1b (44 percent male; mean age = 32.10, *SD* = 10.89).[4] After consenting to participate, workers were shown a coversheet asking respondents to imagine a hypothetical car repair or group project scenario. Participants were then quizzed on the respective scenarios and then shown ten vignettes randomly drawn with replacement from the vignette object universe of 51,840 unique vignettes (see Figures 1 and 2 for examples). While the levels of each dimension were randomized, the order of dimensions was fixed from vignette-to-vignette. After assessing the ten vignettes, participants filled out a demographic questionnaire, were shown a debriefing statement, were thanked for their participation, and then were paid $2. The median time respondents participated in Studies 1a and 1b was 18.12 and 18.87 minutes, respectively.

Dimensions for perceived trustworthiness. To operationalize internal motivations (both instrumental and expressive), a single dimension consisting of six levels was included. Each level centers on information provided by prior interactions, builds on the previous level, and imposes beliefs about the motivations of an exchange partner. The prior interactions level is included to disentangle the effect of previous exchange from the beliefs imposed by the encapsulated interests (interest in future exchange), goodwill (concerned about the truster's interests), and virtuous dispositions (concerned about everyone's interests) levels. The goodwill and virtuous dispositions levels include an additional behavior to signal regard for the truster: an act of "gift giving" that represents expressive motivations more generally (Molm, Schaefer et al. 2007) and acts of altruism more specifically (Fehrler and Przepiorka 2013). A level for prior unsuccessful exchange, uncooperative, is included to explore the spectrum of perceived internal motivations. Further details about this dimension can be found in Figure 3 (for the car repair

[4]MTurk workers must have been legal adults residing in the United States with approval rates 90 percent or above on previous MTurk tasks. No worker participated in both studies.

Car Repair Scenario

Coversheet

Imagine the following scenario

You just started a new job that requires you to commute every day to work. A couple of days before the job starts you decide to take your car in to an automotive repair shop called The Autoshop for an oil change. In the middle of the oil change, the auto mechanic tells you about a major issue with your car's engine that will cost about $1,000 to repair, including parts and labor. You would like your car to be in working order, but you want to spend your money wisely since the amount of money required to restore the car's engine is large compared to your budget.

Additionally, you have some concern: the auto mechanic might suggest fraudulent (or intentionally deceptive) services that are unnecessary and quite costly to you but beneficial to the auto mechanic. You're also concerned since the auto mechanic might provide low quality services at an exaggerated price that would require additional and costly repairs in the future. Plus, you know people who've paid for needless repairs and have had recurrent car problems because of poor quality auto-mechanic services.

Your task:

You will be shown 10 different hypothetical situations. In each situation an auto mechanic from The Autoshop will be servicing your car. While each situation will have the same basic structure and organization, details about the situation and the auto mechanic will differ. Imagine yourself at The Autoshop in each situation and then decide how you feel towards the auto mechanic and whether you trust the auto mechanic to provide quality and legitimate repairs. Please answer the questions that follow each situation as best as you can. Remember: the scenario described above is the same for all 10 situations.

Example Vignette

* The auto mechanic is a 20 year old, white female.
* As far as you know, none of your friends have used the auto mechanic's services before.
* The auto mechanic has never serviced your car before, but, as best you can tell, is a hard-working machinist.
* The auto mechanic verbally promises you that the repairs and new engine parts will last for at least 50,000 miles.
* An automotive agency does not regulate services at The Autoshop.
* The auto mechanic sold you a used computer before but you were dissatisfied with the computer.

Given the conditions above, to what extent do you trust the auto mechanic to provide justifiable and quality auto repairs?

Complete distrust					Neither trust nor distrust					Complete trust	
0	10	20	30	40	50	60	70	80	90	100	Don't know

Figure 1. Example Vignette—Car Repair Scenario

Group Project Scenario

Coversheet

Imagine the following scenario

You are a college student who is enrolled in a course that requires a group project assignment. Each group project involves two separate tasks, one student to analyze data and one student to write a technical report of the results. For your specific group, you were assigned the task of writing a technical report of the results, while your partner was assigned the task of analyzing the data.

But you have some concern: students receive the same grade regardless of their contribution to the group project. You're also concerned since the group project is difficult to complete alone and your partner's contribution to the group project is unknown and uncertain. In other words, if your partner doesn't complete the data analysis for the group project, you might not finish in time and fail the assignment as you'll have to analyze the data without help and write a technical report of the results alone. But if you manage to analyze the data and write a technical report of the results, your partner will receive the same grade as you without having contributed to the group project. Unfortunately, you know people who have failed group projects in the past because other group members did not complete their assigned tasks.

Your task:

You will be shown 10 different hypothetical situations. In each situation you will be collaborating with another student on a group project. While each situation will have the same basic structure and organization, details about the situation and the student will differ. Imagine yourself as a member of the group project in each situation and then decide whether you trust the student to contribute to the group project and whether the student, the situation, or both contributed to this decision. Please answer the questions that follow each situation as best as you can. Remember: the scenario described above is the same for all 10 situations.

Example Vignette

* The student is a 60 year old, Hispanic male.
* As far as you know, none of your friends have worked on a group project with the student before.
* The student has worked on group projects with you before and always completes the assigned data analysis task.
* The student signs an academic honor pledge outlining how the student will be subject to costly academic penalties if the data analysis for the group project is not completed on time.
* The college regulates contributions to group projects by revoking financial aid and academic scholarships from students who don't turn in their assigned tasks. And, as far as you know, the student receives financial aid.
* The student sold you a used computer before and you were satisfied with the computer.

Given the conditions above, to what extent do you trust the student to complete the assigned data analysis task?

Complete distrust					Neither trust nor distrust					Complete trust	
0	10	20	30	40	50	60	70	80	90	100	Don't know

Figure 2. Example Vignette—Group Project Scenario

Car Repair Scenario

Perceived Internal Motivations

- **No prior interaction**: "The auto mechanic has never serviced your car before".
- **Uncooperative**: "The auto mechanic has serviced your car before but provided fraudulent and costly repairs".
- **Prior interaction**: "The auto mechanic has serviced your car before and always provides justifiable repairs".
- **Encapsulated interests**: "The auto mechanic has serviced your car before and always provides justifiable repairs because the auto mechanic is interested in your future business".
- **Goodwill**: "The auto mechanic has serviced your car before and always provides justifiable repairs because the auto mechanic genuinely cares for and is concerned about your interests. You know this since the auto mechanic has repaired your car for free when you couldn't afford the cost of repairs".
- **Virtuous dispositions**: "The auto mechanic has serviced your car before and always provides justifiable repairs because the auto mechanic genuinely cares for and is concerned about the interests of all customers. You know this since the auto mechanic has repaired your car and other customers' cars for free when customers couldn't afford the cost of repairs".

Perceived External Motivations

Contract

- **No contract**: BLANK (i.e., participant shown nothing).
- **Non-binding contract**: "The auto mechanic verbally promises you that the repairs and new engine parts will last for at least 50,000 miles".
- **Binding contract**: "The auto mechanic signs a limited warranty outlining how the auto mechanic will be subject to costly professional penalties if the repairs and new engine parts do not last 50,000 miles".

Regulation

- **No regulation**: "An automotive agency does not regulate services at The Autoshop".
- **Non-monetary regulations**: "An automotive agency regulates services at The Autoshop by teaching auto mechanics who provide fraudulent services to their customers about business ethics and professional integrity".
- **Monetary regulations**: "An automotive agency regulates services at The Autoshop by fining auto mechanics who provide fraudulent services to their customers".

Figure 3. Perceived Trustworthiness Dimensions—Car Repair Scenario

scenario) and the Supplemental Materials online (for the group project scenario).[5]

Since H1 is catholic with respect to the content and form of social constraints, I chose to operationalize external motivations as two separate dimensions (*contract* and *regulation*) consisting of three levels each (see Figure 3 and the Supplemental Materials online). Levels for the *contract* dimension involved the following: no contract, nonbinding contract, and binding contract. Conceptually, nonbinding contracts, such as handshakes and verbal promises, facilitate exchange sans written agreements; binding contracts, on the other hand, encourage exchange with written agreements enforceable by organizational rules and laws. This dimension closely follows classic forms of negotiated exchange (Lawler et al. 2008; Molm, Collett et al. 2007).

Levels for the *regulation* dimension included the following: *no regulation, nonmonetary regulation*, and *monetary regulation*. The regulation dimension operationalizes external motivations as organizational constraints that control multiple exchange relationships (via monetary or nonmonetary sanctions), whereas the contract dimension operationalizes external motivations as social constraints that emerge from and apply to specific exchange relationships (via nonbinding verbal promises or binding agreements). Given their diversity in nature, I chose to investigate two classic forms of organizational constraints: moral incentives and financial incentives.

While differences may exist within *and* between these two dimensions, my overall goal is to capture the heterogeneity of social constraints found in nature. Regardless of form, the hypotheses outlined above remain the same.

Dependent variable. At the bottom of each vignette, participants were asked a trust question (see Figures 1 and 2). The question was structured as an 11-point bipolar scale, ranging from "complete distrust" (0 value) to "neither trust nor distrust" (50 value) to "complete trust" (100 value) with a "don't know" option at the end of the scale (Study 1a: M = 6.51, SD = 2.68, min = 0, max = 10; Study 1b: M = 7.49, SD = 2.30, min = 0, max = 10). The scale was then divided by 10 to produce a variable ranging from 0 to 10. Trust responses consisting of "don't know" (<0.25 percent) were excluded from the analysis.

Analytic strategy. My factorial research design yields panel data in which i vignettes (i = 1,…, 10) are nested within j individuals (j = 1,…, J). As a result, I estimated two-level correlated random-effects models (Wooldridge 2010) to explore H1 through H5. All modeling procedures were executed in Stata 13.1.[6]

Results

Although not shown, null models for the car repair and group project scenarios yielded relatively small intra-class correlation coefficients (model 1 = .10, model 2 = .14), where statistical significance was achieved for the Level 2 disturbance terms in both the car repair (u_{0j} = 0.71, SE = 0.05, $p < .001$) and group project scenarios (u_{0j} = 0.73, SE = 0.05, $p < .001$). This suggests that between-individual (or vignette-invariant) features of the participants, such as personality traits or genetic predispositions, play a small part in the formation of trust. Instead, 90 percent and 86 percent of the variation in trust is accounted for by contextual and

[5]See Supplemental Materials, available at spq.sagepub.com/supplemental.

[6]Further details about the analytic strategy can be found in the Supplemental Materials online.

Table 1. Two-Level Correlated Random-Effects Models of Trust, Studies 1a and 1b

	Model 1	Model 2
	Car repair	Group project
No prior interaction (ref.)		
Uncooperative	–2.77*** (.08)	–2.16*** (.07)
	–0.38	**–0.35**
Prior interaction	1.12*** (.05)	1.19*** (.05)
	0.16	**0.19**
Encapsulated interests	1.34*** (.05)	1.32*** (.05)
	0.18	**0.21**
Goodwill	2.15*** (.05)	1.66*** (.05)
	0.30	**0.27**
Virtuous dispositions	2.07*** (.06)	1.70*** (.05)
	0.29	**0.28**
No contract (ref.)		
Nonbinding contract	–0.04 (.04)	0.10** (.03)
	–0.01	**0.02**
Binding contract	0.61*** (.04)	0.37*** (.03)
	0.11	**0.08**
No regulation (ref.)		
Nonmonetary regulation	0.56*** (.04)	0.23*** (.03)
	0.10	**0.05**
Monetary regulation	0.75*** (.04)	0.56*** (.03)
	0.13	**0.12**
Constant	5.54*** (.51)	5.45*** (.50)
var(u_{0j})	0.69*** (.06)	0.70*** (.04)
var(e_{ij})	2.95*** (.07)	2.17*** (.06)
Other vignette dimensions	Yes	Yes
Vignette dummies	Yes	Yes
Individual-specific mean dim.	Yes	Yes
Individual-level covariates	Yes	Yes
Observations	13,733	14,019
Individuals	1,383	1,414

Note: Shown are unstandardized slopes (robust standard errors in parentheses), with standardized slopes in bold.
**$p < .01$. ***$p < .001$ (two-tailed).

situational characteristics of the car repair and group project scenarios, respectively.

Table 1 presents results of the correlated random-effects models predicting trust in the car repair (Model 1) and group project (Model 2) scenarios. Both models revealed strong support for all four views of perceived trustworthiness—social constraints, encapsulated interests, goodwill, and virtuous dispositions—and the predictions proposed in H1 through H5. First, and following H1, perceived external motivations (i.e., social constraints in the form of contracts and regulations) increased trust regardless of content and form (with the exception of nonbinding contracts in the car repair scenario). Second, perceived internal motivations based on encapsulated interests produced greater trust than either the no prior interactions level (the referent category), the successful prior interactions level (Model 1: $\chi^2[1] = 22.42$, $p <$

.001; Model 2: $\chi^2[1] = 9.79$, $p = .002$), or the social constraints dimensions (see H1 and H5). Third, the goodwill and virtuous dispositions levels generated statistically equivalent slopes that were greater in magnitude than either the encapsulated interests level or the social constraints dimensions (see H3, H4, and H5).[7]

Discussion

Studies 1a and 1b provided support for all four views of the trustworthiness-trust link (H1–H4) as well as the expected inequality of effects (H5): expressive motivations produced greater trust than instrumental motivations, and internal motivations produced greater trust than external motivations (goodwill = virtuous dispositions > encapsulated interests > social constraints). These findings suggest that the four types of perceived trustworthiness investigated here are sufficient to produce trust but that some forms of trustworthiness are stronger in their effects than others.

STUDIES 2A AND 2B

The purpose of the second two studies is to investigate whether affective mechanisms in the form of other-praising emotions—gratitude and admiration—drive the relation between perceived trustworthiness and trust (H6, H7, and H8). To this end, two survey experiments drawn from Studies 1a and 1b were administered to undergraduate students at a large public university.

Methods

Design, Participants, and Procedure. In the fall of 2013, 10,000 undergraduate students at a large public university were contacted. All students were randomly selected from a publicly available student directory. Of these 10,000 students, 5,000 were randomly selected for each experiment. A total of 995 undergraduate students participated in Study 2a (39 percent male; mean age = 20.78, $SD = 4.41$), while 956 undergraduate students participated in Study 2b (36 percent male; mean age = 20.79, $SD = 4.27$). Studies 2a and 2b featured the same $2^4 \times 3^3 \times 4^1 \times 5^1 \times 6^1$ multifactorial vignette design as Studies 1a and 1b.

Studies 2a and 2b were administered in the same way as Studies 1a and 1b, respectively, with four exceptions. First, participants were contacted over email, advertising lottery payment for participating in a web-based experiment (chance to win of one of six $50 bills), where each sampled student was provided with a web-link to the experiment. Second, eligibility was restricted to undergraduate students with legal adult status. Third, the median time respondents participated in Studies 2a and 2b was 19.57 and 19.65 minutes, respectively. Fourth, two vignette-level dependent variables (gratitude and admiration) preceded the trust dependent variable.

Dependent variables. At the bottom of each vignette, participants were asked three questions structured as 11-point bipolar scales. The first question measured gratitude with values ranging from "complete ingratitude" (0 value) to "neutral" (50 value) to "complete gratitude" (100 value), with a "don't know" option at the end of the scale (Study 2a: $M = 6.24$, $SD = 2.40$, min = 0, max = 10; Study 2b: $M = 6.51$, $SD = 2.25$, min = 0, max = 10). The second question, admiration, was of a similar structure, ranging from "complete disdain" (0 value) to "neutral" (50 value) to "complete admiration" (100 value), with a "don't know" option at the end of the scale (Study 2a:

[7] H_0: goodwill = virtuous dispositions (Model 1: $\chi^2[1] = 3.10$, $p > .05$; Model 2: $\chi^2[1] = 1.15$, $p > .05$); H_0: goodwill = encapsulated interests (Model 1: $\chi^2[1] = 275.92$, $p < .001$; Model 2: $\chi^2[1] = 75.12$, $p < .001$); H_0: virtuous dispositions = encapsulated interests (Model 1: $\chi^2[1] = 200.24$, $p < .001$; Model 2: $\chi^2[1] = 99.04$, $p < .001$).

M = 5.90, SD = 2.34, min = 0, max = 10; Study 2b: M = 6.19, SD = 2.16, min = 0, max = 10).[8] The third question measured trust with the item used in Studies 1a and 1b (Study 2a: M = 6.74, SD = 2.46, min = 0, max = 10; Study 2b: M = 7.52, SD = 2.25, min = 0, max = 10). All three scales were divided by 10 to produce variables ranging from 0 to 10. Gratitude, admiration, and trust responses consisting of "don't know" (<1 percent) were excluded from the analysis.

Analytic strategy. To explore if and how gratitude and admiration mediate the relation between perceived motivations and trust, I employed two-level correlated random-effects models with mediation in which lower level mediation (i.e., gratitude and admiration) of lower level effects (i.e., perceived motivations and trust) takes place. All modeling procedures were implemented in Stata 13.1 with the generalized structural equation model estimation package.[9]

Results

Table 2 replicates models from Studies 1a and 1b, which estimate the total effects of perceived motivations on trust. As expected, Studies 2a and 2b support the total effects detected in Studies 1a and 1b with a few minor exceptions.[10]

Table 3 shows results for the correlated random-effects models with mediation outlined in the Supplemental Materials online, where gratitude (M_{1ij}) and admiration (M_{2ij}) mediate the effects of perceived internal and external motivations (X_{ij}) on trust (Y_{ij}). Model 1 provides results of the multilevel mediation analysis for Study 2a. When predicting gratitude (see H6), any intentional and voluntary act that benefited a respondent increased the participant's experienced gratitude toward the beneficiary (see the effects of prior interaction, encapsulated interests, goodwill, and virtuous dispositions on gratitude). Also note that the slope for goodwill (b = 1.94) was larger than, and statistically different from ($\chi^2[1] = 276.62$, $p < .001$), the slope for encapsulated interests (b = 0.87) and that a similar difference was observed for the virtuous dispositions slope (b = 1.75, $\chi^2[1] = 200.34$, $p < .001$). Unexpectedly, the slope for goodwill was larger than, and statistically different from ($\chi^2[1] = 11.33$, $p < .001$), the virtuous dispositions slope. Regarding social constraints, the various operationalizations generated roughly similar—albeit substantively minor—amounts of gratitude. These results support the prediction that goodwill and virtuous dispositions increase gratitude to a greater extent than encapsulated interests, which in turn produces greater gratitude than social constraints (see H6).

Turning to H7, I expected displays of virtue to elicit greater feelings of awe and admiration than simple displays of goodwill (Immordino-Yang et al. 2009), but this is not what was observed. In fact, the effects of goodwill were statistically equivalent to virtuous dispositions ($\chi^2[1] = 0.08$, $p > .05$), and the effects of encapsulated interests as well as social constraints were statistically significant and positive—all of which were contrary to my expectations (see H7).

When predicting trust, gratitude and admiration yielded statistically significant

[8] Given the conditions above, to what extent do you feel [gratitude/admiration] towards the [auto mechanic/student]?

[9] Further details about the analytic strategy can be found in the Supplemental Materials online.

[10] Larger intra-class correlation coefficients (Study 2a = .18; Study 2b = .26) and Level 2 disturbance terms (Study 2a = 1.07; Study 2b = 1.31) were observed in Studies 2a and 2b; statistically insignificant effects were observed for nonbinding contracts in Studies 2a and 2b; and a statistically insignificant difference between prior interaction and encapsulated interests was observed for Study 2a ($\chi^2[1] = 2.33$, $p > .10$) but not for Study 2b ($\chi^2[1] = 12.55$, $p < .001$).

Table 2. Two-Level Correlated Random-Effects Models of Trust, Studies 2a and 2b

	Model 1	Model 2
	Car repair	Group project
No prior interaction (ref.)		
Uncooperative	–2.15*** (.09)	–1.94*** (.08)
	–0.32	**–0.32**
Prior interaction	1.07*** (.07)	0.94*** (.06)
	0.16	**0.16**
Encapsulated interests	1.15*** (.06)	1.11*** (.06)
	0.18	**0.19**
Goodwill	1.79*** (.07)	1.48*** (.06)
	0.27	**0.24**
Virtuous dispositions	1.67*** (.07)	1.44*** (.06)
	0.25	**0.24**
No contract (ref.)		
Nonbinding contract	–0.02 (.04)	0.05 (.04)
	–0.005	**0.01**
Binding contract	0.63*** (.05)	0.28*** (.04)
	0.12	**0.06**
No regulation (ref.)		
Nonmonetary regulation	0.55*** (.05)	0.20*** (.04)
	0.11	**0.04**
Monetary regulation	0.72*** (.06)	0.41*** (.04)
	0.14	**0.09**
Constant	5.79*** (.57)	5.50*** (.72)
var(u_{0j})	0.72*** (.06)	0.84*** (.08)
var(e_{ij})	2.64*** (.08)	2.00*** (.07)
Other vignette dimensions	Yes	Yes
Vignette dummies	Yes	Yes
Individual-specific mean dim.	Yes	Yes
Individual-level covariates	Yes	Yes
Observations	9,361	8,999
Individuals	986	945

Note: Shown are unstandardized slopes (robust standard errors in parentheses), with standardized slopes in bold.
***$p < .001$ (two-tailed).

and positive associations, and as H8 predicted, the slope for gratitude was larger than the slope for admiration ($\chi^2[1] = 4.58$, $p < .05$). Putting these results together, we can see that gratitude (M_{1ij}) and admiration (M_{2ij}) partially mediate the effects of perceived internal (both expressive and instrumental) and external motivations (X_{ij}) on trust (Y_{ij}).

Observed slopes for the indirect effects (i.e., ab) and normal theory standard errors are presented in Table 4. Model 1 provides indirect effects by gratitude and admiration for Study 2a. As can be seen, the indirect effects for all types of perceived internal and external motivations (X_{ij}) on trust (Y_{ij}) through gratitude (M_{1ij}) and admiration (M_{2ij}) were statistically different from zero except for nonbinding contracts. As expected, gratitude and admiration mediated the effects of goodwill and virtuous dispositions on trust to a greater extent than encapsulated interests and social constraints (see the IE/TE

Table 3. Two-Level Correlated Random-Effects Models of Trust With Mediation, Studies 2a and 2b

	Model 1			Model 2		
	Car repair			Group project		
	Gratitude	Admiration	Trust	Gratitude	Admiration	Trust
Gratitude			0.49***			0.42***
			(.04)			(.02)
			0.48			**0.42**
Admiration			0.32***			0.27***
			(.04)			(.02)
			0.31			**0.26**
No prior interaction (ref.)						
Uncooperative	–1.95***	–1.84***	–0.59***	–1.23***	–1.18***	–1.10***
	(.08)	(.08)	(.06)	(.07)	(.07)	(.06)
	–0.30	**–0.29**	**–0.09**	**–0.20**	**–0.20**	**–0.18**
Prior interaction	0.75***	0.65***	0.49***	0.65***	0.57***	0.51***
	(.06)	(.06)	(.05)	(.06)	(.05)	(.05)
	0.12	**0.11**	**0.07**	**0.11**	**0.10**	**0.09**
Encapsulated interests	0.87***	0.73***	0.49***	0.89***	0.79***	0.52***
	(.06)	(.06)	(.05)	(.06)	(.06)	(.05)
	0.14	**0.12**	**0.07**	**0.15**	**0.14**	**0.09**
Goodwill	1.94***	1.64***	0.30***	1.80***	1.45***	0.33***
	(.07)	(.07)	(.06)	(.07)	(.06)	(.05)
	0.30	**0.26**	**0.05**	**0.29**	**0.25**	**0.05**
Virtuous dispositions	1.75***	1.62***	0.29***	1.51***	1.35***	0.44***
	(.07)	(.07)	(.05)	(.07)	(.06)	(.05)
	0.27	**0.26**	**0.04**	**0.25**	**0.24**	**0.07**
No contract (ref.)						
Nonbinding contract	–0.0001	–0.01	–0.02	0.01	0.03	0.03
	(.04)	(.04)	(.03)	(.04)	(.03)	(.03)
	–0.000	**–0.002**	**–0.004**	**0.002**	**0.007**	**0.007**
Binding contract	0.34***	0.30***	0.37***	0.06	0.12**	0.22***
	(.04)	(.05)	(.03)	(.04)	(.04)	(.03)
	0.07	**0.06**	**0.07**	**0.01**	**0.03**	**0.05**
No regulation (ref.)						
Nonmonetary regulation	0.32***	0.32***	0.29***	0.09*	0.08*	0.14***
	(.04)	(.05)	(.03)	(.04)	(.04)	(.03)
	0.06	**0.06**	**0.06**	**0.02**	**0.02**	**0.03**
Monetary regulation	0.35***	0.36***	0.43***	0.17***	0.18***	0.30***
	(.04)	(.05)	(.03)	(.04)	(.04)	(.03)
	0.07	**0.07**	**0.08**	**0.04**	**0.04**	**0.06**
Constant	5.64***	5.58***	1.85***	5.42***	4.54***	2.34***
	(.67)	(.64)	(.41)	(.74)	(.72)	(.54)
var(u_{1j})	0.88***			1.00***		
	(.07)			(.08)		
var(e_{1ij})	2.49***			2.14***		
	(.08)			(.07)		
var(u_{2j})		0.97***			1.07***	
		(.08)			(.07)	
var(e_{2ij})		2.46***			1.93***	
		(.08)			(.06)	

(continued)

Table 3. (continued)

	Model 1			Model 2		
	Car repair			Group project		
	Gratitude	Admiration	Trust	Gratitude	Admiration	Trust
var(u_{3j})			0.29***			0.51***
			(.02)			(.04)
var(e_{3ij})			1.16***			1.15***
			(.06)			(.04)
Other vignette dimensions		Yes			Yes	
Vignette dummies		Yes			Yes	
Individual-specific mean dim.		Yes			Yes	
Individual-level covariates		Yes			Yes	
Observations		9,361			8,999	
Individuals		986			945	

Note: Shown are unstandardized slopes (robust standard errors in parentheses), with standardized slopes in bold.
*$p < .05$. **$p < .01$. ***$p < .001$ (two-tailed).

column in Table 4), where effect sizes for social constraints were of little practical significance.

Importantly, similar findings were detected in Study 2b.[11] This shows that the hypothesized links between perceived motivations, other-praising emotions, and trust replicate and can be observed under conditions that mirror the principle-agent problem (car repair scenario) and the collective action problem (group project scenario).

Discussion

Studies 2a and 2b showed that other-praising emotions in the form of gratitude and admiration linked perceived trustworthiness to trust. Both studies found that other-praising emotions were triggered by perceived trustworthiness but that some forms of motivation were stronger in their effects than others: Social constraints produced the least gratitude and admiration, goodwill and virtuous dispositions produced the most, and encapsulated interests fell in between. Feelings of gratitude and admiration were related to trust but the positive association between gratitude and trust was greater than that of admiration and trust.

GENERAL DISCUSSION

My results reveal that trust can originate from multiple forms of trustworthiness but that some forms are more potent than others and that other-praising emotions account for these differences. Studies 1a and 1b confirmed these effects in two survey experiments of a simulated car repair and group project scenario, showing how perceived *expressive* motivations of a trustee—goodwill and virtuous dispositions—produced equivalent levels of trust that were greater than perceived *instrumental* motivations—encapsulated interests and social constraints. Furthermore, trustworthiness stemming from

[11]The direct effect of virtuous dispositions on trust is greater than and statistically different from goodwill in Study 2b ($\chi^2[1] = 9.28$, $p < .01$) but not Study 2a ($\chi^2[1] = 0.16$, $p > .10$), and the indirect effect of binding contract is statistically insignificant in Study 2b but not Study 2a (see Table 4).

Table 4. Inferences for the Indirect Effects of Perceived Trustworthiness on Trust Through Gratitude and Admiration

	Model 1			Model 2		
	Car repair			Group project		
	Gratitude (*ab*)	Admiration (*ab*)	IE/TE	Gratitude (*ab*)	Admiration (*ab*)	IE/TE
Uncooperative	–0.96*** (.09) **–0.14**	–0.60*** (.07) **–0.09**	73%	–0.52*** (.04) **–0.09**	–0.32*** (.03) **–0.05**	43%
Prior interaction	0.36*** (.04) **0.06**	0.21*** (.03) **0.03**	53%	0.28*** (.03) **0.05**	0.15*** (.02) **0.03**	46%
Encapsulated interests	0.43*** (.05) **0.07**	0.23*** (.04) **0.04**	57%	0.37*** (.03) **0.06**	0.21*** (.02) **0.04**	49%
Goodwill	0.96*** (.09) **0.14**	0.53*** (.07) **0.08**	83%	0.76*** (.04) **0.12**	0.39*** (.03) **0.06**	78%
Virtuous dispositions	0.86*** (.08) **0.13**	0.52*** (.07) **0.08**	83%	0.64*** (.04) **0.11**	0.36*** (.03) **0.06**	69%
Nonbinding contract	–0.00002 (.02) **0.00**	–0.003 (.01) **–0.001**	0%	0.005 (.02) **0.001**	0.01 (.01) **0.002**	30%
Binding contract	0.17*** (.03) **0.03**	0.10*** (.02) **0.02**	41%	0.03 (.02) **0.006**	0.03** (.01) **0.007**	21%
Nonmonetary regulation	0.16*** (.03) **0.03**	0.10*** (.02) **0.02**	47%	0.04* (.02) **0.008**	0.02* (.01) **0.005**	30%
Monetary regulation	0.17*** (.03) **0.03**	0.12*** (.02) **0.02**	40%	0.07*** (.02) **0.02**	0.05*** (.01) **0.01**	27%

Note: Shown are unstandardized indirect effects (normal theory approach standard errors in parentheses), with standardized indirect effects in bold. *ab* = indirect effect; IE/TE = indirect effects of gratitude and admiration divided by the total effect (see Table 2 for total effects).
*$p < .05$. **$p < .01$. ***$p < .001$ (two-tailed).

factors *internal* to an exchange relationship—goodwill, virtuous dispositions, and encapsulated interests—produced greater trust than trustworthiness stemming from factors *external* to an exchange relationship—social constraints.

Studies 2a and 2b replicated these findings and investigated whether affective mechanisms account for the observed causal relations. In particular, I found that (a) other-praising emotions—gratitude and admiration—partially mediated the relation between perceived motivations and trust; (b) these mediating effects were stronger for perceived *expressive* (*internal*) motivations than for perceived *instrumental* (*external*) motivations; and (c) the association between gratitude and trust was greater than that of admiration.

Empirically, the finding that other-praising emotions mediate the causal relation between trustworthiness and trust extends previous research and theory in a number of important respects. First, sociological exchange theorists commonly treat affect and trust as indicators of latent constructs, such as social solidarity (Molm, Collett et al. 2007), or as distinct concepts that do not causally interrelate (Kuwabara 2011). While Lawler et al. (2008) approach the causal specifications outlined here, their focus is on positive emotions in general and on social cohesion in particular. For them, exchange frequency produces positive emotions that foster perceptions of expressive value and relational cohesion. For me, perceived trustworthiness produces other-praising emotions that foster trust. In the present article, my goal was to decompose affect from trust and to treat each as separate concepts and not as manifest indicators of social solidarity or some other latent construct. By directly manipulating expressive value—instead of treating it as an endogenous variable (see Lawler et al. 2008; Molm, Collett et al. 2007; Molm, Schaefer et al. 2007)—I was able to gain traction on the casual order between trustworthiness, affect, and trust. Ultimately, my results suggest that expressive value precedes affect and that affect in the form of other-praising emotions precedes trust.

Second, the present research helps reconcile divergent claims by scholars who view trust as interest-based (Cook et al. 2005; Hardin 2002) versus interest- *and* affect-based (Lewis and Weigert 1985; McAllister 1995). For most scholars, it is widely believed that "trust is … a cognitive process which discriminates among persons and institutions that are trustworthy, distrusted, and unknown" (Lewis and Weigert 1985:970). The foundations of these cognitions are where most trust scholars diverge. For Hardin and colleagues, beliefs about a person's incentives to be (or interests in being) trustworthy constitute core trust cognitions. For others, like Lewis and Weigert, trust is built on an emotional base that is complementary to its cognitive foundation.

My goal was to weave both theoretical traditions into a single model. I argue that beliefs about a person's interest in being trustworthy vary to the extent that their trustworthiness is perceived as expressively *and* internally motivated and that other-praising emotions account for this variation. My results suggest that interest-based models of trust insufficiently capture how trustworthiness produces trust: For expressively motivated forms of trustworthiness (goodwill and virtuous dispositions), affective mechanisms account for most of the variation between trustworthiness and trust; for instrumentally motivated forms of trustworthiness (encapsulated interests and social constraints), affective mechanisms account for some variation between trustworthiness and trust. I take these findings to mean that trust is mostly interest-based for instrumental motivations either internal to or external to an exchange relationship (more so for external motivations) but that trust is mostly affect-based for expressive motivations. Altogether, the foundations of trust are cognitive *and* emotional, but whether trust is more interest-based or affect-based in a particular exchange relationship depends on the content and form of a person's trustworthiness.

Beyond contributing to our understanding of how trustworthiness produces trust, the results offer insight into the operation of trust in modern society. In spite of differences between perceived instrumental and expressive motivations, instrumental motivations should not be interpreted as inconsequential for trust. In fact, our day-to-day lives might consist of a hundred interactions with people for

whom we know nothing about beyond publicly imposed social constraints, a handful of exchanges with people whose interests encapsulate our own, and a few relations where genuine care and concern are at the heart of the relationship. In other words, the utilitarian value of benefits is critical for the creation and maintenance of social bonds within communities and societies and can result in a relationship becoming a valued object in itself that elicits great amounts of trust (Lawler et al. 2008).

Regarding future research, promising avenues of inquiry might synthesize the present findings with research on generalized trust, which is a belief about the cooperativeness and helpfulness of individuals in general (Putnam 2000). Two compelling streams of research are possible. First, Paxton and Glanville (2015) recently found that generalized trust is malleable and a function of one's immediate experiences and social interactions. Building from this, one could investigate whether exchanges based on expressive motivations have a greater impact on the reformulation of generalized trust than instrumentally motivated exchange relationships and identify whether this link is mediated by other-praising emotions. If true, variance in perceived trustworthiness may well account for differences in average levels of generalized trust across social units like nations and states. Second, research that integrates models of perceived trustworthiness with culturally informed models of generalized trust, such as Yamagishi and Yamagishi's (1994) emancipation theory of trust, could also bear fruit. Investigating whether instrumental-expressive motivations constitute a core dimension of individualism-collectivism is one possible line of inquiry; another is how instrumental-expressive motivations might interact with individualism-collectivism to promote or undermine generalized trust.

Despite the complementary findings and consistency of results across samples and situations, the current research is not without limitations. An outstanding criticism concerns the simulated nature of the research design. According to the other-praising emotions literature, displays of virtue should incite feelings of awe and admiration (Immordino-Yang et al. 2009), which is what I discovered. But I did not observe a difference between acts of goodwill and acts of virtue, where a difference was expected to emerge. It could be that simulated and hypothetical acts of virtue are unable to generate the awe and elevation found with real-life acts of generalized altruism (Collett and Childs 2011). This might account for the similar effects goodwill and virtuous dispositions exert on trust where, in reality, virtuous dispositions may have a stronger effect than goodwill. Nevertheless, humans are surprisingly adept at experiencing emotional reactions through imagination and simulation (Phelps 2006), and I would expect similar effects with the simulated treatments administered here.

Another design-based criticism involves external validity and the trust-behavior link. As with any research based on simulations and hypothetical situations, complementary studies should be conducted where tangible behavioral causes and consequences are manipulated, controlled, and observed (Berg et al. 1995). This is an important next step given that self-report measures of trust do not perfectly predict cooperation or trusting behavior (Molm, Schaefer et al. 2007). But since trust is a belief that serves as a sufficient condition—not a necessary *and* sufficient condition—for cooperation and exchange (Cook et al. 2005), investigating trust with self-reports—like in the present article—is a worthy, albeit cautionary, endeavor.

A final issue worth discussing concerns problems of causal identification.

Other-praising emotions were identified as plausible mechanisms connecting perceived trustworthiness to trust. But because other-praising emotions, like trust, were neither directly manipulated nor randomly assigned to individuals, estimates of direct and indirect effects involving gratitude and admiration could be biased due to simultaneity—the joint determination of other-praising emotions and trust—or omitted variables—the omission of mediators correlated with other-praising emotions and trust. Because of these potential endogeneity problems, future research is required to identify the causal link between other-praising emotions and trust. Although difficult, the introduction of valid instrumental variables for gratitude and admiration would accomplish this task. Yet neuroscientists have shown that emotions do precede higher order cognitive processes such as belief formation (Damasio 1999), implying that trust may in fact stem from gratitude and admiration. The outstanding research questions, then, concern not whether but how much and to what extent other-praising emotions produce trust.

SUPPLEMENTAL MATERIAL

Additional supporting information may be found at spq.sagepub.com/supplemental.

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