Trust in Behavioral Economics

A Review of "On the Economics and Biology of Trust" by Ernst Fehr

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Behavioral economics is a field that challenges pre-existing assumptions in economic modeling. Notions of trust in market transactions exemplify this aspect of the field as they contradict Adam Smith's claim that rational self-interest motivates economic activity. In recent years, the topic of trust has emerged as the basis for recognizing economic and social transactions as mutually beneficial. This concept was first introduced in the trust game run by Berg, Dickhaut, and McCabe (1995). In this experiment, one participant is endowed with a dollar value and can choose how much to keep and how much to pass to the other participant. The amount passed is augmented, and the second player then decides how much of the augmented amount to keep and how much to return. Through this setup, participants experience the tensions between private motives and potential gains from trust and reciprocity. The trust game proves divergence from the subgame-perfect Nash Equilibrium; which, predicts that the responder in a trade always maximizes payoff in the final stage. By studying the topic of trust, we can understand deviations from the subgame-perfect equilibrium and explain how the deviations are motivated by gains in a trading relationship.

Ernst Fehr adds to this understanding in his paper "On the Economics and Biology of Trust," where he summarizes the literature on this topic and claims that levels of trust are determinants of economic variables such as inflation, GDP growth, and the volume of trade between nations. He draws this claim from the findings of LePorta et al. (1997) who found "a larger share of trusting people is negatively correlated with inflation rates and positively correlated with GDP growth across countries," (Fehr, 2009). In addition, Guiso, Sapienze, and Zingales (2009) found that "higher bilateral trust between two countries is associated with more trade between the countries," (Fehr, 2009). Equally important, a study run in 2008 by the same authors contributed microeconomic evidence to prove less trusting individuals are less likely to purchase stock, adding to the discussion of the "participation puzzle,"; the phenomenon surrounding why few people take part in the stock market.

In support of his thesis, Fehr uses Coleman's (1990) definition of trust; a behavioral definition that is closely linked to the economic primitives of preferences and beliefs. In a multipronged analysis, Fehr begins his paper with accumulated evidence from the neurobiological, genetic, and behavioral sciences to underscore the idea that social preference plays a key role in trusting behavior. He organizes the paper through sections that further explain how trust is based on special forms of social preferences like betrayal aversion. He asks the following questions: Is trading just a special case of risk taking? Do risk and social preference predict survey trust? Further, he addresses the role of trustworthiness across borders by using evidence from Naef et al. (2008) to examine the trust gap between the US and Germany.

Author's Hypothesis and Experimental Procedures:

Fehr's stated hypothesis is as follows: "I document the recent accumulation of strong evidence - that trusting cannot be captured by beliefs about other people's trustworthiness and risk preferences alone, but that social preferences play a key role in trusting behavior," (Fehr, 2009). His argument stems from the idea that economists have yet to provide fully convincing evidence that optimistic beliefs about other's trustworthiness have an independent role in causing long term outcomes. To Fehr, "economists still lack instrumental variables for trust that support causality claims beyond doubt," (Fehr, 2009). For this reason, Fehr turns to betrayal aversion as documented by Bohnet et al. (2004). The study of betrayal aversion departs from the more accepted approach to decision making under risk as it distinguishes risk constituted by asocial factors and risk associated with interpersonal interactions. As defined by Fehr, "people are willing to take risk when facing a given probability of bad luck than to trust when facing an identical probability of being cheated," (Fehr, 2009). Fehr is interested in examining betrayal aversion in relation to beliefs and social preferences, all of which are major contributors to trustworthiness.

Fehr's method of research is multifaceted as he evaluates the work of scholars across disciplines in an effort to reveal the shortcomings in trust literature before him. To begin, he examines data from a neurological experiment conducted by Kosfeld et al. (2005), in which the experimenter designed a version

of the trust game. In this experiment, one group inhaled a spray containing the uniquely mammalian neuropeptide oxytocin, and the other group inhaled a placebo spray," (Fehr, 2009). Oxytocin was used with the rationale that it plays a key role in prosocial approach behaviors in nonhuman mammals, and could identify a willingness to take social risks in both animals and humans. Kosfeld hypothesized that the neuropeptide would cause humans to exhibit more behavioral trust, and ultimately found that higher levels of oxytocin exhibited maximal trust in the subjects. However, Fehr questions if raising the oxytocin level created more optimistic beliefs. As well, he asks if the oxytocin made the subjects more prosocial, or did it simply increase trust? These inquiries lead Fehr to believe that "if beliefs remain unaffected, it must be the case that oxytocin influences behavior by affecting subjects' preferences," (Fehr, 2009).

An investigation into the behavioral evidence related to trust reveals the significance of betrayal aversion in socially constituted economic activities. In his research, Fehr draws from the non-interactive decision problem conducted by Bohnet et al. (2008). This version of the trust game excludes a trustee who makes a decision and earns a payoff. Instead, the subject faces the choice between a "sure payoff of 10 or lottery L= { 15 with probability *p* and 8 with (1- p)}," (Fedr, 2009). This research controlled for risk aversion and employed minimal acceptance probability, creating a more distinct understanding of the subject's behavior in the game. Fehr critiques the work for its heavy focus on risk preferences, stating that it failed to control for betrayal aversion. Fehr says, "If researches cannot control for betrayal aversion, regression for first-mover behavior in the trust game on measures of risk preferences suffer from a lot of noise and omitted variable bias, possibly preventing significant results in smaller samples," (Fehr, 2009).

Next, Fehr uses data from the German Socio-Economic Panel (SOEP) to determine if betrayal and risk aversions are predictive of trust regressions. The data contains survey measures of betrayal aversion, trust, and risk preferences. The three following statements are used to measure trust: "In general, one can trust people," "Nowadays, you can't rely on anybody," "In dealing with strangers, it is better to be cautious before trusting them." The response choices to these statements are "disagree strongly,"

"disagree somewhat," "agree somewhat," and "agree strongly." Fehr ascribes a number to the paired statement and response in a way that attributes higher value with higher amounts of trust. Fehr then determines that signs of negative reciprocity are suitable proxies for betrayal aversion. He uses two statements from the SOEP's reciprocity questionnaire: "If I suffer a serious wrong, I will take revenge as soon as possible, no matter what the costs," and "If someone offends me, I will also offend him/her." Responses to these statements were recorded on the Likert scale from 1 to 7. In an effort to measure risk preference, Fehr examines responses to the statement, "Are you, generally speaking, a person who is fully prepared to take risks, or do you try to avoid taking risks?" Participants answered on a Likert scale ranging from 0-10, with 0 corresponding to very risk-averse and 10 corresponding to very risk-seeking. Lastly, to control for altruism or generosity, as they often influence trust, Fehr uses a question from SOEP that asks about volunteerism in clubs and social organizations. The survey takers responded to "How do you spend your free time? Please indicate how often you engage on average in each of the following activities." Respondents rank activities such as walking, socializing with friends, and volunteering in clubs with "never, seldom, monthly, weekly, or daily." This information is compiled into a regression that associates 0 with never volunteers and 1 otherwise (Fehr, 2009). Fehr also introduces a "sociability" variable, which he claims enhances the ability of the volunteer variable to account for "other regarding concerns."

Results and Conclusions of the Study:

Fehr correlates the preference measures with the trust questions examined at the outset of the study. He finds that risk preference, altruistic concern (measured through one's willingness to volunteer), and betrayal aversion significantly affect trust. The statistics reveal that a person with high risk aversion trusts less compared to an individual with moderate risk aversion. This corresponds with -0.16*** and -0.07*** respectively, as a measure on the trust index found in Table 1 posted below. Similarly, Fehr reveals that subjects with higher levels of betrayal aversion are less trusting than those with an

intermediate preference for betrayal aversion. From the table, high betrayal aversion was calculated as -0.36*** on the trust index while medium levels of betrayal aversion figured -0.11***. The control for sociability and altruistic concern found that those who never volunteer are less trusting, acknowledging that "other regarding concerns affect trust measures," (Fehr, 2009).

Fehr Economics and Biology of Trust 249

TABLE 1. The role of risk preferences and social preferences for survey trust.

Dependent variable	Trust index	In general, one can trust people	Nowadays you can't rely on …	When dealing with strangers…
Risk aversion: high	−0.16***	−0.09***	−0.11***	−0.17***
(Base: low)	(0.02)	(0.02)	(0.02)	(0.02)
Risk aversion: medium	−0.07***	−0.04**	−0.05***	−0.07***
	(0.02)	(0.02)	(0.02)	(0.02)
Betrayal aversion: high	−0.36***	−0.33***	−0.32***	−0.16***
	(0.03)	(0.03)	(0.03)	(0.03)
Betrayal aversion: medium	−0.11***	−0.11***	−0.13***	−0.00
(Base: low)	(0.02)	(0.02)	(0.02)	(0.02)
Dummy for volunteering	0.25***	0.18***	0.17***	0.22***
	(0.02)	(0.02)	(0.02)	(0.02)
Dummy for sociability	0.15***	0.12***	0.16***	0.04***
	(0.01)	(0.01)	(0.01)	(0.01)
Constant	0.05**	0.03	0.04*	0.03
	(0.02)	(0.02)	(0.02)	(0.02)
Observations	18732	18732	18732	18732
Adjusted-R^2	0.04	0.02	0.03	0.02

Notes: OLS-Regression of trust on measures of risk aversion, betrayal aversion, and altruism (robust standard error in parentheses). We also performed ordered probit regressions which are not reported. They yield the same conclusions, namely, risk aversion, betrayal aversion, and volunteering affect our trust measures significantly. All trust measures are taken from the German Socio-Economic Panel. They are standardized so that they have mean zero and a standard deviation of 1, implying that the regression coefficients provide information about how many standard deviations trust changes if the independent variable changes by one unit. The trust index takes averages of the answers to all three trust questions. We partition the risk and betrayal aversion measure into three categories: high aversion, medium aversion and low aversion. Risk aversion is "high" if respondents circle 0–3 on the Likert Scale, "medium" if they circle 4–6 and "high" if subjects choose 7–10. Betrayal aversion is "high" if respondents circle on average 6-7 on the Likert Scale for negative reciprocity, it is medium for 3–5 and we classify a subject as "low" betrayal-averse if he chooses 1-2 on the Likert Scale. The volunteering variable is a dummy that takes a value of zero if subjects never volunteer and a value of 1 otherwise. This regression does not control for demographic and socio-economic influences on trust, but it controls for "sociability" which is a dummy variable with value 1 if the respondent meets at least daily or weekly with "friends, relatives, or neighbors."
*Significant at 10%; **significant at 5%; ***significant at 1%.

The most significant find from this investigation is that "the coefficients on betrayal aversion are even larger than those on risk aversion," (Fehr, 2009). This suggests the importance of betrayal aversion in trust over the more commonly discussed variable of risk. This data is consistent with the research conducted by Naef et al. (2008) that looks at the trust differences across national and ethnic divides. The researchers "examined the distribution of risk and social preferences in the US and in Germany on the basis of the preference measures" used in Fehr's previously discussed analysis (Fehr, 2009). The results show that the US population is less risk averse and less betrayal averse than the Germans. As well, the US

population is more altruistic and has more optimistic beliefs about the trustworthiness of their trading partner. From these findings Fehr concludes, "if risk preferences, social preferences, and beliefs about the anonymous partner's trustworthiness affect trusting behavior, the preferences and belief differences across the two countries should also explain the trust gap between the countries. And they do," (Fehr, 2009).

The plethora of evidence found in Fehr's paper lead him to ultimately conclude that risk preferences and social preferences are very often predictors of trust in surveys, as seen by the SOEP analysis. As well, the use of risk and social preferences as indicators of trust is supported by Naef et al., who show how the preference measures explain the trust gap between the United States and Germany.

Questions, Critique, and Inspiration for Future Research:

In the conclusion of his paper, Fehr states that preferences and beliefs capture other determinants, such as religiousness, in his analysis; therefore, they should not play an independent role in determining trustworthiness. While this might hold truth in a comparison of trusting behaviors in Western societies, I question the validity of this statement in the context of the East-West dichotomy. The claim that religiousness is captured in beliefs is fitting for the transactions between two Judeo-Christian societies, that of the United States and Germany, but I believe different results will be found in comparison of trust between Judeo-Christian and Islamic communities. In addition, the understanding of trustworthiness through a comparison of two Western societies neglects the orientalist perspective that the West projects on nations in the East and the greater global south. The orientalist perspective often preconviences levels of trustworthiness in non-Christian peoples, and as a result affects economic transactions. Noteworthy, Fehr's research was conducted in 2009 when the discussions of the political and social climate were focused on the Financial Crisis in the United States and Europe. Now, more than a decade later, it would be interesting to compare trustworthiness between the United States and China, China and South Korea, the United States and Iran, or Germany and the United Kingdom.

This leads me to a critique of the trust game's design involving anonymity of its participants. At the country level, officials very rarely operate with imperfect information on their trading partner, and are more often aware of the trading history and international relations between the two countries. At the microeconomic level, stock traders have the necessary information to determine the trustworthiness, or reliability, of a company based on their 52-week performance. A knowledgeable trader is aware of their partner's risk preferences, beliefs, and behaviors in transactions and determines their best strategy accordingly. I propose that the trust game designed in 1995 is oversimplified and is not an applicable model to accurately forecast trading behavior in a time of easily accessible information. It also fails to account for how globalization impacts participant's trustworthiness. I propose a treatment to Fehr's work, and the trust game altogether, that uses demographic information as independent variables in determining trustworthiness. I suggest this with the hope that scholars recognize the field's tendency to overlook the value of differing race, ethnicity, and religion in trustworthiness not only within borders, but across them as well.

Bibliography

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