

Public Trust and Collaborative Governance: A Priming Experiment

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Abstract

Trust in government has attracted much attentions as an important social outcome, but we know little about its effects on citizen-state interactions. In this study, I posit that trust in government may affect citizens' perceptions of collaborative governance. To test the effect of trust in government accurately and overcome the endogeneity problem of measuring trust in traditional surveys, I proposed an alternative design that uses randomized public integrity information to prime individuals' levels of trust in government from low to high. In a local environmental program scenario, I tested the effect of this exogenous trust further on several collaborative governance outcomes. The results indicated that trust in government has no effect on public perceptions of either public-private partnerships or public-citizen-partnerships, but it has a positive effect on citizens' willingness to coproduce. These findings provide new opportunities to study trust in government and offer theoretical implications to help scholars understand collaborative governance better.

Keywords: public trust, collaborative governance, coproduction, priming experiment

Introduction

Does public trust matter, and matter to what? This research question has been examined rarely in the field of public management, although the study of public trust is central in explaining why trust increases or declines, given that it is an important social outcome ([Grimmelikhuijsen et al. 2013](#); [Im et al. 2014](#)). The rising antipathy toward government in Western democracies increases the need for scholars to advance their knowledge about the causes of public distrust. However, as the level of trust in government is already at its historical low, we should view it not only as a social outcome, but also explore its costs and consequences to citizen-state interaction.

The normative argument about public trust and citizen-state interaction is prominent. As [Bryson et al. \(2014, 446\)](#) argued, government should include citizens in public affairs as active problem-solvers and coproducers when the traditional belief in using performance effectiveness and efficiency to govern is challenged “... at a time of historic distrust of a broad range of institutions.” In today’s diverse society, public interest is not based upon aggregated self-interests but “open, inclusive, and informed discussion of values” ([Denhardt and Denhardt 2015, 667](#)). Citizens are not only voters or customers in public services, but also owners of government. Given this consideration, citizens have rights to criticize and monitor government actions. Government should include diverse and cross-sector actors, such as local communities, nonprofits, and business groups in a collaborative decision-making process. In addition, this process should be transparent and accountable to every citizen. In this way, government can improve the democratic institution in policy implementation and response to the current prevailing public distrust.

Nevertheless, there are two contradictory empirical assumptions in this normative argument. Some scholars assume that distrust in government will increase citizen participation in public affairs because they have strong motivations to exercise their rights of checks and balances ([Parry 1976](#); [Van De Walle and Six 2014](#)). Therefore, the emerging collaborative

governance forms hold government accountable. In contrast, others predict that the erosion of trust in government may cause citizens to hold cynical views of any government action and discourage them from participating in public affairs. If so, collaborative governance may fail before civic engagement. The unclear theoretical mechanism between public trust and collaborative governance hinders the development of scholarship in this area and makes it difficult for practitioners to design effective institutional tools to ameliorate adversarial citizen-state relationships.

The causal relation between the variation of trust in government and its potential outcomes, such as perceived collaborative governance, remain untestable because trust is often viewed as an endogenous concept that is embedded within people’s subjective system. The existing literature relies on survey questions to measure the degree of trust. With this method, trust is associated with other survey items and suffers from common source bias in establishing a causal argument ([Meier and O’Toole 2012](#)). In addition, it is difficult to create a counterfactual world between people who trust and do not trust government in surveys. Therefore, what public trust affects is an enduring puzzle in the public management literature.

The purpose of this article is to overcome the endogeneity issue in measuring public trust and enrich our theoretical knowledge of the causal relation between public trust and collaborative governance. To make the concept of trust exogenous, I conducted an online experiment that assigned information randomly to prime subjects into different levels of trust in government. Then, I estimated the effects of public trust on evaluations of different collaborative governance forms, including government-private collaboration and government-citizen collaboration. Finally, I estimated public trust’s effects on the willingness to coproduce.

The findings suggested that public trust has a positive effect in increasing citizens’ willingness to coproduce, but no effect on perceived collaborative governance (either public-private partnerships or public-citizen partnerships). Indeed, with respect to the comparably strong preference for public-citizen partnerships across subjects under different trust condi-

tions, the null finding on perceived collaborative governance actually signals that the normative value of inclusive and open governance enjoys popular support. In addition, the mean score of the evaluation of public-citizen partnerships was higher than that of public-private partnerships, and this difference held across both trust conditions.

More broadly, these findings contribute to public administration theory in two ways. First, they disentangle the confused theoretical mechanism between public trust and willingness to coproduce. High confidence in government may be more likely to explain citizens' willingness to coproduce rather than their critical motivation to hold government accountable. Second, the findings also highlight the importance of public-citizen partnerships. As a fundamental and important format of collaborative governance, public-private partnerships should attract more scholarship on the way to encourage citizens to participate in its progress.

Trust in Government

Trust is a basic concept that appears in many social science disciplines. Understanding its causes and outcomes is fundamentally important for us to study the way society works. As a widely used concept, trust has diverse definitions. In this article, I follow the interdisciplinary definition that [Rousseau et al. \(1998, 395\)](#) proposed, "Trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another." Other public administration scholars have accepted this definition ([Berg and Johansson 2020](#); [Grimmelikhuijsen et al. 2013](#); [Grimmelikhuijsen and Meijer 2014](#)). Specifically, this article focuses on public trust, which demonstrates citizens' positive expectations of government's intentions or behaviors.

A large body of literature in public administration has investigated why and how people trust government. Most of the factors that affect public trust derive from three dimensions: competence; benevolence, and honesty ([Mayer et al. 1995](#)). Competence describes government's effectiveness and capacity to provide public goods ([Hetherington and Husser 2012](#)).

Different from competence, benevolence states whether the intention of government action is committed to public interests (Levi and Stoker 2000). The final dimension, honesty, reflects the government’s integrity, which is measured by the willingness to tell the truth (Grimmelikhuijsen et al. 2013). These dimensions are interrelated, but they also demonstrate separately the derivation of public trust.

Based upon these dimensions, public administration scholars have identified multiple institutional factors that may explain the variation in trust: Government performance; transparency; e-government, and coproduction are all potential variables that affect citizens’ trust in government. For example, Yang and Holzer (2006) established a comprehensive framework to test the performance-trust link. To improve public trust, they suggested that a performance measurement should be citizen-centric, systematic across agencies, and include external actors in the evaluation process. In addition to performance, government openness is another important concept that affects public trust. Transparency, e-government, and coproduction can all be categorized as explanatory variables in this stream. Transparency has mixed effects on public trust (Cucciniello et al. 2017). On the one hand, it creates an open culture in governance, but on the other, citizens may become uncertain and confused when they are exposed to overwhelming amounts of government information (Grimmelikhuijsen et al. 2013). Im et al. (2014) found that e-government can moderate the negative effect of internet use on trust in government. Their results offer considerable implications for practitioners’ efforts to mitigate the erosion of public trust. More relevant to this study, Kang and Van Ryzin (2019) investigated the causal relation between coproduction and public trust in a survey experiment. They predicted that coproduction generates “...positive feelings toward self-made products” and eventually has a positive effect on public trust (Kang and Van Ryzin 2019, 1649). However, they obtained null finding from this hypothesis, which suggests that the theoretical relation between coproduction and public trust is more complex than expected.

As these studies have shown, the theoretical development of public trust has increased

greatly in the last two decades. Nevertheless, what public trust affects when it serves as an explanatory variable has attracted much less attention. Therefore, the theoretical foundation of public trust is incomplete. Referring to [Citrin and Stoker \(2018, 50\)](#), "...A trusts B to do X. Trust always has an object or target (B), which could be a person, group, or institution, and a domain of action (X) where trust is given or withheld." What we know is the reasons why citizens (A) trust or mistrust their government (B); what we have yet to explore is the action (X) where trust is given or withheld. The political science literature uses trust to predict policy preferences and political participation. For example, trust in federal government leads people to support government involvement in international issues ([Hetherington and Husser 2012](#)), but does not cause them to support redistribution policies ([Peyton 2020](#)). On the other hand, distrust in government spurs political engagement, such as making financial contributions and contacting elected officials ([Miller and Krosnick 2004](#); [Miller et al. 2016](#)). In summary, trust in government shapes the public legitimacy of government's discretionary power and affects citizens' willingness to add their own voice in public affairs.

These phenomena also apply to the field of public administration. [Cooper et al. \(2008\)](#) investigated the association between public trust and approval in zoning, and found that local administrators' discretion in zoning is correlated positively with trust in local government. [Im et al. \(2014\)](#) also showed that citizen compliance is associated positively with trust in government. Although the existing literature has not used public trust to predict social outcomes frequently, both studies have important implications that public trust can be a critical factor in citizen-state interactions.

Public Trust and Perceived Collaborative Governance

Trust Regimes

The normative foundation between public trust and citizen-state interaction derives from the development of trust regimes. [Bouckaert \(2012\)](#) categorized three types of trust

regimes: institution-based; calculus-based, and relational, each of which corresponds with a specific historical era. The institution-based trust regime occurred in the traditional public administration era. In this approach, public trust is built on clear rules and regulations in a Weberian hierarchical system, which defines professional bureaucrats' rights and duties clearly. Moving beyond the traditional public administration, the New Public Management marketized public services, so government performance became the main predictor of public trust. In this era, public trust was calculus-based, which suggests that government should maintain a high level of public trust by collecting data on expectations, satisfaction, and making quality models of public services explicit.

Today, we are living in the relational trust regime. Political communication is no longer one-way in the government-to-citizen direction. Trust is the outcome of not only institutional rules or public performance information, but also is an attribute embedded in ongoing citizen-state interactions. As [Bouckaert \(2012, 16,17\)](#) argued, "Citizens' trust could be influenced by a willingness for partnerships, co-production, volunteering, public-service motivation and sharing policy objectives of the public sector and society"; and citizens' trust also "... pushes for co-design, co-decision, co-production and co-evaluation." These two-way effects urge the public trust scholarship to give attention to the way public trust affects collaborative governance.

In the following sections, I demonstrate theoretical links between public trust and perceptions of two different forms of collaborative governance: public-private partnership and public-citizen partnership. Further, I compare the competing theories of public trust on willingness to coproduce. It is worth noting that all three hypotheses in the next sections are exploratory, because we do not have well established theories in these areas yet.

Trust and Public-private Partnerships

Public-private partnership is a prevalent governance strategy, which is defined as the "... integrated risk-sharing agreements that hold both public and private partners to account

for project’s success” (Boyer and Van Slyke 2019). By participating in the decision-making process of public goods production, private sector organizations bring special technical expertise, financial resources, and innovation ideas into public management. However, accountability is always a concern in public-private partnerships. As Forrer et al. (2010, 477) argued, “Accountability in PPPs requires the creation of proper safeguards to ensure that public services are not compromised for the sake of private profits.”

A successful public-private partnership should be accountable not only to its partners, but also to citizens. In this sense, citizens’ attitudes toward public-private partnerships are normatively important. Indeed, citizens are more likely to be critical of public-private partnerships than contracting or privatization (Boyer and Van Slyke 2019). The latter two are often simple to understand in citizens’ minds, because the private role is clear and the mechanism is market-based (Thompson and Elling 2000). Service performance and goods quality describe private sector organizations’ capacity. However, the private role is vague in public-private partnerships. One cannot simply attribute service failure to the private capacity, because the decision-making process between government and private organizations is a black box.

When information is asymmetric, trust becomes crucial, as it helps individuals establish heuristics toward government actions. I expect that trust in government affects citizens’ perception toward public-private partnerships positively. When citizens trust government and have a positive expectation of its intentions or behaviors, they will be more likely to believe that the public-private partnership will benefit public interest. In contrast, distrustful citizens will be skeptical about the motivation of a public-private partnership and assume that it is created for public officials’ personal benefits or business groups’ private profits.

The most relevant evidence of this argument is from Boyer and Van Slyke (2019). They hypothesized a negative relation between trust in government and attitude toward public-private partnerships, because trust in government may reduce public support for market-oriented reforms. In contrast, their survey results showed that trust in government is as-

sociated positively with support for public-private partnerships, because trustworthy civil servants can be relied upon to manage partnerships with private organizations. Based upon the above argument and this evidence, I assume that:

H1: Trust in government affects citizens' attitude toward public-private partnerships positively.

Trust and Public-Citizen Partnership

In contrast, the theoretical relations between trust in government and the attitude toward public-citizen partnerships may be negative. When trust in government declines, citizens may be more likely to favor public-citizen partnerships, because they want government actions to be monitored.

This argument is rooted in the classical liberal theory in which citizens have rights to exercise checks and balances in public affairs. In this sense, a certain level of distrust in government is not necessarily a problem because citizens remain alert to government actions and hold the government accountable thereby ([Van De Walle and Six 2014](#)). Otherwise, a high level of trust in government may be risky to society and the authorities in power will face less control. Several empirical studies on government discretion have supported this idea. For example, [Cooper et al. \(2008\)](#) found that public trust is associated positively with citizens' support of local government's discretion in zoning decisions. Similarly, some authors have observed that when citizens have little trust in government, they prefer that social organizations rather than the government design social policies and welfare programs ([Chanley et al. 2000](#); [Hetherington and Husser 2012](#)).

Rather than monitoring government actions passively by evaluating public performance, involving citizens actively in public affairs is an innovative way to hold the government accountable. Compared to other forms of third sector monitoring, citizen involvement is a direct mode to monitor government actions. Including citizens in making policy decisions can add their vision and voice into public affairs effectively ([Meijer et al. 2012](#)). It can not

only improve government accountability, but also improve the diversity of opinions in the policy process. Therefore, government-citizen coproduction is a prominent and long-standing concept in public administration literature. However, scholars have limited knowledge of the way citizens perceive coproduction. Is it a necessary tool to create public goods when the government's capacity to serve public interests is in doubt? Or, do citizens view coproduction as too great a burden to their daily lives when the government can be trusted to manage public goods production? These questions are important for us to disentangle the complex citizen-state interactions, but we lack empirical evidence of them. Therefore, I propose the following hypothesis:

H2: Trust in government affects citizens' attitude toward public-citizen partnerships negatively.

Trust and Willingness to Coproduce

If public-citizen partnership is an important governance tool to enhance the quality of public goods, we should study why citizens choose to coproduce or not. Therefore, the existing literature has discussed several predictors of willingness to coproduce, such as representative bureaucracy ([Riccucci et al. 2016](#)), socioeconomic status ([Clark et al. 2013](#)), and public service motivation ([Uzochukwu and Thomas 2018](#)).

As [Kang and Van Ryzin \(2019\)](#) found that trust in government is not attributable to coproduction, the theoretical mechanism between these two variables is more complex than scholars expected. In this study, I suggest a reverse causality approach, in which trust affects citizens' willingness to coproduce. Although few studies in the field of public administration have discussed this causal direction, political scientists have provided some implications from studying trust and political participation. There are two competing approaches: trust-participate and mistrust-participate. On the one hand, trust could be a catalyst for citizen participation, because citizens believe that their inputs are meaningful in a trustworthy institution. Without trust, citizens would hold cynical views toward government and hesitate

to participate in anything related to it (Van De Walle and Six 2014). On the other hand, trust may generate satisfaction with government and “. . . view it as needing little monitoring” (Citrin and Stoker 2018, 62). In this sense, distrustful citizens may be more willing to monitor government and participate in the decision-making process.

It is worth noting that the attitude toward public-citizen partnerships and willingness to coproduce is based upon two different psychological foundations. When individuals believe others should participate more in monitoring government actions, it does not necessarily mean that they will do the same. Therefore, H2 corresponds only with the second approach in the trust and willingness to coproduce link. Individuals may also use the first approach. They may decline to join coproduction activities because of their cynical views toward government, but they may still wish others to do so and hold government more accountable. With respect to this theoretical complexity, it is valuable for us to test the theoretical link between trust and willingness to coproduce empirically.

H3: Trust in government affects citizens’ willingness to coproduce positively (or negatively).

Priming Experiment

Constructing Exogenous Trust

To test the hypotheses above, I designed a pre-registered (pre-registration report is available in [Appendix A](#)) online experiment on Amazon Mechanical Turk (MTurk). To identify the trust effect on individuals’ perceived collaborative governance and willingness to coproduce causally, I adopted a priming experimental approach. Subjects read basic information about a hypothetical American municipality, and the experimental manipulation varied municipal officials’ public integrity levels: few officials charged for corruption (honest group), many officials charged for corruption (corruption group), and no information about corruption (control group). This varied information primed subjects into three different trust conditions toward the hypothetical Midtown government: low trust (corruption); medium

trust (control), and high trust (honest). Next, I measured subjects' trust level by asking: "How much of the time do you think you can trust the government in Midtown to make decisions in a fair way?" This question was adapted from American National Election Studies measures of political trust.

Using corruption information to prime trust in government is established well in the political science literature (see [Green et al. 2018](#); [Kuziemko et al. 2015](#); [Peyton 2020](#)). Its mechanism corresponds to the honesty dimension in the concept of trust ([Mayer et al. 1995](#)). The current experimental approach was adapted from [Peyton \(2020\)](#). To examine the priming manipulation's validity, researchers need to compare the mean difference of trust in government between the experimental conditions. Ideally, subjects' trust in government should be ranked from low to high, from the corruption, control, to honest group. If so, the priming manipulation is successful. Then, researchers can regress the trust rank on the dependent variables of interest.

This priming approach overcomes the endogeneity of using self-reported trust in a regression analysis, as self-reported trust may raise several identification issues, such as reverse causality ([Peyton 2020](#); [Van de Walle and Bouckaert 2003](#)) and common source bias ([Meier and O'Toole 2012](#)). These issues hinder the theoretical development of public trust. The priming approach in this study makes trust an exogenous variable, so its effect on perceived collaborative governance can be interpreted causally.

In addition, this design attempted to avoid potential ethical issues. First, the experimental municipal scenario and the public integrity information were both hypothetical. Thus, this survey was unlikely to influence subjects' opinion of actual governments. Second, the survey included a debriefing statement at the end that explained the study's experimental purpose. Other than the ethical issues, the experimenter demand effect is a common drawback in priming experiments. Therefore, I veiled the dependent variables with some other irrelevant questions that distracted subjects from inferring the experimental purpose. I introduce the veiled questions and measurements of the dependent variables in the next

section.

Measuring Perceived Collaborative Governance

After reading the priming information and answering the trust question, subjects were introduced to a public program: community choice aggregation (CCA). CCA is an actual energy program that empowers municipal governments to purchase renewable energy for local communities (O’Shaughnessy et al. 2019). After the introduction of CCA, I asked the subjects their perceptions of public-private and public-citizen partnerships, which were measured by subjects’ attitude toward the statement that these actions can “benefit local interests in your community”. This measurement is similar to that of Boyer and Van Slyke (2019) and Cain et al. (2020). To minimize the experimenter demand effect, I also included two veiled questions on the same survey page, both of which were about their attitude toward renewable energy. I randomized the order of these questions (two dependent variable questions and two veiled questions) to avoid any order effect. Next, I asked subjects their willingness to coproduce. Table 1 reports the experimental manipulations, trust question, and measurements of all dependent variables. The manipulation check, an attention test, and demographic questions were included at the end of the survey (see Appendix B for the full survey protocol).

Results

The survey experiment was conducted in May 2021. The final sample included 1198 subjects (48% female, Mean(age) = 40) from MTurk. The survey invited only adults who are living in the United States currently. The control group included 406 individuals, the corruption group 406, and the honest group 386. Hence, the sample was balanced essentially across the experimental groups overall. 76% of the subjects answered both the manipulation check and attention test questions correctly. The more detailed sample characteristics and randomization checks are reported in Appendix C.

Table 1: Experimental Conditions and Measurements

Experimental conditions	Assuming that Midtown is a medium-sized American city, which has 100,000 population. The Midtown government is leaded by 1 city mayor and 10 city council members. All of them are elected officials. [Control Group: no additional information] [Corruption Group: Midtown has an historical problem with corruption. In the last 20 years, 15 elected officials and 50 private individuals have been charged for corruption.] [Honest Group: Midtown is well known for its public integrity. In the last 20 years, no elected official or private individual has been charged for corruption.]
Trust in government	How much of the time do you think you can trust the government in Midtown to make decisions in a fair way?
Dependent variables	[DV1: public-private partnership] The CCA implementation board should include business groups to monitor the policy decision-making process. The government-private partnership will benefit local interests in your community. [DV2: public-citizen partnership]The CCA implementation board should include local citizens to monitor the policy decision-making process. The government-citizen partnership will benefit local interests in your community. [Veil question 1]The CCA should promote wind power rather than solar power. [Veil question 2]The CCA should promote solar power rather than coal. [DV3: willingness to coproduce]As a local resident, are you willing to participate in the CCA implementation board and oversee the decision-making process of the Midtown government?

Note: Subjects answered the questions above by moving a 0 – 100 slide bar. For trust in government: 0 = *never*, 100 = *always*; for DV1 & 2 and veiled questions: 0 = strongly disagree, 100 = strongly agree; for DV3: 0 = definitely not, 100 = definitely yes.

Validating the Priming Manipulation

The analysis began with an initial assessment of the priming manipulation’s validity, which is an important step to ensure the causal interpretation of the results. Figure 1 displays the difference-in-means of trust between each experimental group. In the corruption group, the mean degree of trust was 34.13 ($SD = 27.05$), and it increased to 63.11 ($SD = 21.06$) in the control group and 74.72 ($SD = 18.19$) in the honest group. Trust in government increased significantly from the corruption to control ($t(764) = 17.04, p = 0.00$), and from the control to honest ($t(783) = 8.31, p = 0.00$). This evidence indicates that the priming manipulation was effective and trust in government is a linear function of public integrity.

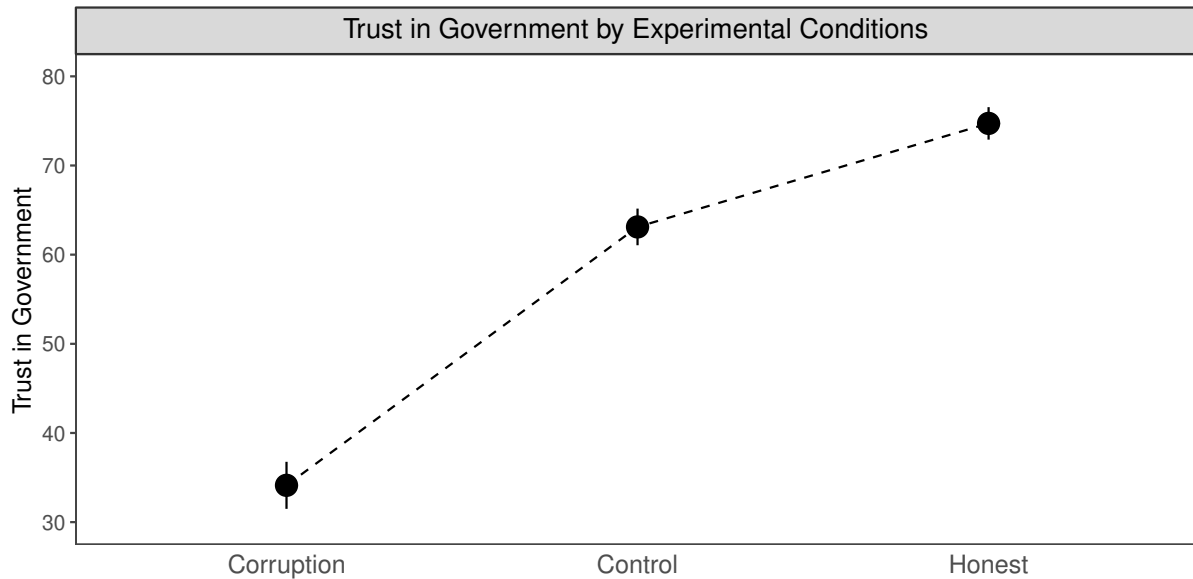


Figure 1: Validity of the Priming Manipulation

Note: Bars are 95% confidence intervals.

Following [Peyton’s \(2020\)](#) recommendation, I coded the experimental conditions as the exogenous trust variable: *corruption* = 0; *control* = 0.5; *honest* = 1. In this way, the experimental conditions represented the standardized exogenous trust in government from low to high. In the next sections, I regressed this exogenous trust variable on the dependent variables of interest to examine the theoretical links between trust and perceived collaborative governance.

Testing Trust's Effects on Perceived Collaborative Governance

Before interpreting the regression analysis results, I report the descriptive differences in preferences between the forms of collaborative governance. Figure 2 shows consistent attitude gaps between the dependent variables, regardless of the experimental conditions. Compared to public-private partnerships (mean attitude = 61.29, $SD = 24.99$), more subjects on average believe that public-citizens partnerships will be beneficial to local interests in their communities (mean attitude = 77.36, $SD = 18.69$). Even so, subjects' willingness to coproduce (mean willingness = 69.06, $SD = 23.50$) was significantly lower than their preference for public-citizen partnerships. Across experimental conditions, the mean attitude toward public-citizen partnerships was 16.07 degrees ($CI = (14.31, 17.84)$, $p = 0.00$) higher than the mean attitude toward public-private partnerships. Further, the mean willingness to coproduce was 8.30 degrees ($CI = (6.60, 10.00)$, $p = 0.00$) lower than the support of public-citizen partnerships. In the following paragraphs, I test the relation between trust and each dependent variable (Table 2).

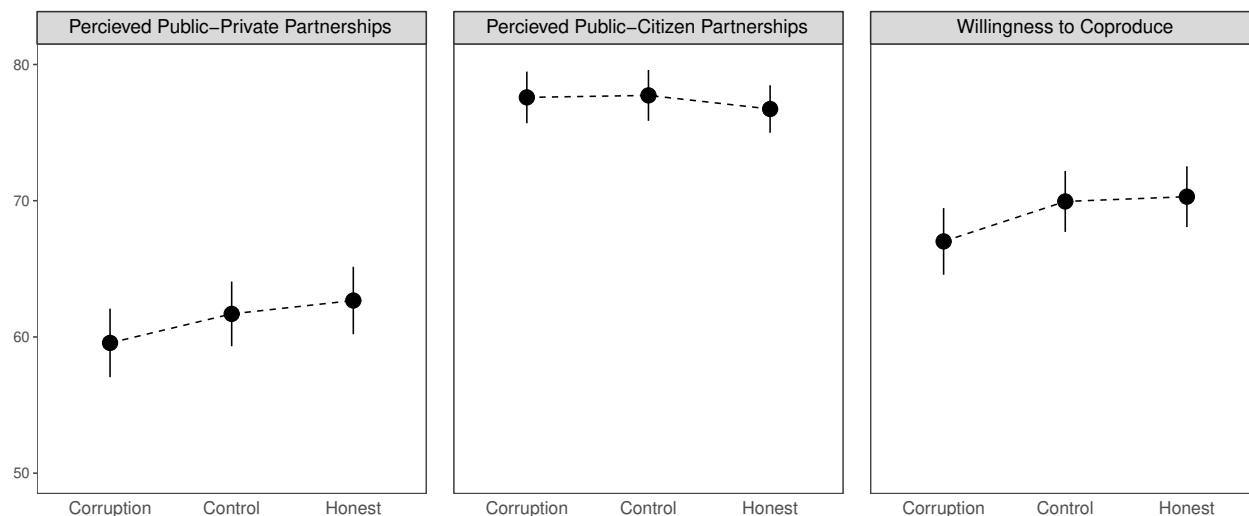


Figure 2: Individual Preferences for Forms of Collaborative Governance

Note: Bars are 95% confidence intervals.

H1 proposed that trust affects citizens' perceptions of public-private partnerships positively. The linear regression (Table 2, Model 1) showed that a 1 unit increase in trust leads

to a 3.12 degree ($SE = 1.78$, $p = 0.08$) increase in favorable attitudes toward public-private partnerships. However, this effect is insignificant at the 0.1 level ($p = 0.11$) when the model includes covariate adjustment (Table 2 Model 2). The evidence suggests a weak relation between trust and perceived public-private partnerships. Thus, conservatively speaking, H1 was not supported. Therefore, subjects have consistent preferences for public-private partnerships, and trust in government may not be a critical predictor that affects their preferences.

Table 2: Trust Effect on Perceived Collaborative Governance

	(1)	(2)	(3)	(4)	(5)	(6)
Exogenous Trust	3.122 (1.775)	2.742 (1.720)	-0.843 (1.329)	-0.484 (1.320)	3.307* (1.669)	3.320* (1.641)
Constant	59.751*** (1.132)	23.589*** (4.722)	77.775*** (0.848)	67.774*** (3.623)	67.439*** (1.064)	50.490*** (4.502)
Covariates	No	Yes	No	Yes	No	Yes
R ²	0.003	0.098	0.000	0.042	0.003	0.065
Observation	1198	1173	1198	1173	1197	1172

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Exogenous Trust is measured by coding experimental conditions as: 1 = honest; 0.5 = control; 0 = corruption. Covariates include gender, age, race, income, education, and climate beliefs variables.

H2 proposed that trust affects citizens' perceptions of public-citizen partnerships negatively. Model 3 in Table 2 shows that a 1 unit increase in trust leads to only a 0.84 degree ($SE = 1.33$, $p = 0.53$) decrease in the favorable attitude toward public-citizen partnerships. This insignificant effect was robust after adjusting the covariates in Table 2, Model 4. Similar to public-private partnerships, subjects have consistent preferences for public-citizen partnerships, regardless of their trust levels toward the government.

H3 posited that trust affects citizens' willingness to coproduce positively. Model 5 in Table 2 shows that a 1 unit increase in trust leads to a 3.31 degree ($SE = 1.67$, $p = 0.04$) increase in willingness to coproduce. The covariate adjustment model (Table 2, Model 6) identified a similar effect ($coefficient = 3.32$, $SE = 1.64$, $p = 0.04$). This evidence supports

the trust-participate approach. Citizens are more likely to participate in coproduction when they have high levels of trust in government, while distrust in government may make them hesitant to coproduce.

Discussion and Conclusion

The theoretical development of trust as an independent variable has attracted less attention in the existing literature than as a dependent variable. However, I argue that investigating the consequences of trust and distrust in government is timely and important for public management in today's complex society. This article employed a novel measurement strategy of trust in government to explore the causal relations between trust and perceived collaborative governance. The results above indicated that trust in government does not change citizens' perceptions of public-private partnerships and public-citizens partnerships easily. However, trust in government increases citizens' willingness to coproduce with local governments in fighting environmental management issues. These findings offer the following contributions to public management theory.

The normative value of public-citizen partnerships is persistent. Citizens have strong beliefs that public-citizen partnerships will benefit local interests in their communities, regardless of their levels of trust in the government. This evidence suggests that citizen involvement is important in making and implementing local policy decisions. Not only do distrustful citizens like to have external members in the policy decision-making process, but trustful citizens also have similar demands to oversee government actions. Citizens remain alert to government actions, and do not wish to relinquish control to the authorities. As [Denhardt and Denhardt \(2015\)](#) argued, citizens' engagement and coproduction have become increasingly important to solve public management problems across all levels of governments. Inclusive governance is not only a practical tool to mitigate public distrust, but also a normative value that holds the government accountable to all citizens and represents public interests.

The theoretical relation between trust and public-private partnerships is more complex than expected. Citizens' trust in government may not necessarily determine their perception of public-private partnerships, but their attitude toward the private sector instead. As [Boyer and Van Slyke \(2019\)](#) stated, citizens are more likely to support public-private partnerships if they have a better understanding of the role a private partner plays in the policy implementation process. Therefore, future research can test the effect of trust in the private sector on public-private partnerships with the same priming method used in this study.

Moreover, the positive effect of trust in government on willingness to coproduce supports the trust-participate approach and rejects the mistrust-participate approach. On the one hand, trust in government encourages citizens to coproduce in making and implementing local policy decisions. On the other hand, cynical views of government will make citizens hesitant to join in public affairs discussions. This finding has important implications for public managers. When designing coproduction policy projects, governments need to enhance their trustworthiness. Although citizens have strong preferences for public-citizen partnerships, they will not participate in the coproduction process if they mistrust the government. Corresponding to [Bryson et al.'s \(2013\)](#) argument, managing uncertainty among citizens, improving adaptive capacity, and emphasizing social capital are all pivotal in designing the public participation process. Therefore, I suggest that future research in the coproduction area should conduct more investigations on ways to enhance relational trust between citizens and government.

In addition to the theoretical contribution above, this study moves one step forward to improve the ability to identify causality in the effect of trust in the public administration literature. The novel measurement strategy of trust overcomes surveys' endogeneity problem. This innovation provides fertile ground for the theoretical development of public trust. Further, it allows scholars to use trust as an exogenous explanatory variable and test its theoretical effects on other social outcomes, such as public approval of government actions and managerial reforms. On the other hand, the causal effect of trust is more robust in this strict

exogenous condition, and therefore, the evidence can provide more accurate management and policy suggestions to public managers to improve citizen-state interactions.

While this study highlights the effect of trust in government on perceived collaborative governance, it still has several limitations that should encourage further research. First, the priming information and the entire experimental scenario were based upon a hypothetical municipality, “Midtown.” The purpose of using hypothetical information was to avoid ethical concerns of manipulating subjects’ perceptions of government in the real world. Although this hypothetical approach excludes many real-world confounders, such as individuals’ prior attitudes toward government, the trust in government it generated may still differ from that in the real-world. Future works may include longitudinal measures of trust in government to identify the exogenous trust effect on perceived collaborative governance and see whether it is comparable with the findings in this study. Second, the effect of trust in government on coproduction may be context-based. This study used an environmental program, but I encourage other scholars to replicate this design in other policy areas to test its ability to be generalized. In addition, trust’s effect may differ in some countries in which citizens have less anti-government sentiment. Therefore, including comparative perspectives in theoretical development should be an important research agenda in the area of public trust (e.g., [Grimmelikhuijsen et al. 2013](#)).

Even when these limitations are considered, this study provides important contributions that help us understand the theoretical associations between trust in government and citizens’ perceptions of collaborative governance. In summary, the prominent and normative values that motivate public participation and the consequences of public trust or distrust both indicate that we should advance the theory of collaborative governance further and design the citizen-state interactions unburdened in practice.

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Supplemental Information

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Appendix A Pre-registration Report

Have any data been collected for this study already?

No, no data have been collected for this study yet

What's the main question being asked or hypothesis being tested in this study?

In this study, we ask: How does public trust affect citizens' perceptions toward collaborative governance?

- i Hypothesis 1: When people's trust in government decreased (or increased), they will be less (or more) likely to support public-private collaboration.
- ii Hypothesis 2: When people's trust in government decreased (or increased), they will be more (or less) likely to support public-community collaboration.
- iii Hypothesis 3: When people's trust in government (or increased), their willingness to coproduction will be increased (or decreased).

Describe the key dependent variable(s) specifying how they will be measured.

Perception of government-private collaboration:

For this variable, we ask: The CCA implementation board should include business groups to monitor the policy decision-making process. The government-private partnership will benefit local interests in your community. (Moving a 0-100 scale bar: 0 = strongly disagree, 100 = strongly agree)

Perception of government-citizen collaboration:

For this variable, we ask: The CCA implementation board should include local citizens to monitor the policy decision-making process. The government-citizen partnership will benefit local interests in your community. (Moving a 0-100 scale bar: 0 = strongly disagree, 100 = strongly agree)

Willingness to coproduce:

For this variable, we ask: As a local resident, are you willing to participate in the CCA implementation board and oversight the decision-making process of the Midtown government? (Moving a 0-100 scale bar: 0 = definitely not, 100 = definitely yes)

How many and which conditions will participants be assigned to?

Before answering questions regarding major dependent variables, subjects will be randomly assigned into 1 of 3 conditions where there presents a piece of information about a hypothetical municipal government. In control group, basic information about the hypothetical city: Midtown and its government elected officials will be introduced. In corruption treatment group, subjects will see the basic information the same as the control group and the historical corruption problem in Midtown. In treatment group, subjects will see the basic information

the same as the control group and the well-known public integrity performance of Midtown.

After seeing government information of Midtown, citizens will be asked to express their trust in Midtown government:

How much of the time do you think you can trust the government in Midtown to make decisions in a fair way? (Moving a 0-100 scale bar: 0 = Never, 100 = Always)

Then, information about an energy program will be introduced to subjects. They will be asked to evaluate four statements. Two of these statements are about the above government-private collaboration and government-citizen collaboration (see the dependent variable part). The other two statements are about their energy preferences. These two statements are veil questions here to reduce potential demanding effect.

Next, subjects will be asked to answer the coproduction willingness question.

Specify exactly which analyses you will conduct to examine the main question/hypothesis.

Our analysis separates in three parts: trust, collaboration perception, and coproduction willingness. Difference-in-means and regression-based analysis will be implemented to all three parts.

Any secondary analyses?

Subgroup analysis based on climate beliefs and ideology will be conducted.

How many observations will be collected or what will determine the sample size? No need to justify decision, but be precise about exactly how the number will be determined.

We will stop data collection once 1,200 subjects (approximately 400 per cell) have submitted a response on MTurk. Deviations from this goal are entirely due to MTurk software and outside of our control.

Anything else you would like to pre-register? (e.g., data exclusions, variables collected for exploratory purposes, unusual analyses planned?)

Subjects' demographic information will be collected after they have answered the questions regarding key dependent variables. The information is collected for detecting the heterogeneity of the treatment effect and for the randomization balance check.

Appendix B Survey Protocol

[Survey begin]

[VPN and Proxy Check]

[IRB Consent Form]

Page 1: Priming information

See Table 1

Page 2: Trust question

How much of the time do you think you can trust the government in Midtown to make decisions in a fair way?

Moving a 0-100 slide bar: 0 = never, 100 = always

Page 3: Policy scenario

Assuming the government in Midtown plans to adopt an energy program: Community Choice Aggregation (CCA).

CCA allows local elected officials to choose where the energy comes from for their community. It's a program to purchase power in bulk for virtually all homes within the participating jurisdiction. The Midtown government promises that CCA can allow whole communities to participate in the clean energy economy by ensuring that a greater percentage of electricity is coming from renewable sources.

Based on this information, please evaluate the following statement.

[The order of following questions are randomized]

The CCA should promote wind power rather than solar power.

Moving a 0-100 slide bar: 0 = strongly disagree, 100 = strongly agree

The CCA implementation board should include business groups to monitor the policy decision-making process. The government-private partnership will benefit local interests in your community.

Moving a 0-100 slide bar: 0 = strongly disagree, 100 = strongly agree

The CCA should promote solar power rather than coal.

Moving a 0-100 slide bar: 0 = strongly disagree, 100 = strongly agree

The CCA implementation board should include local citizens to monitor the policy decision-making process. The government-citizen partnership will benefit local interests in your community.

Moving a 0-100 slide bar: 0 = strongly disagree, 100 = strongly agree

Page 4: Willingness to coproduce

As a local resident, are you willing to participate in the CCA implementation board and oversight the decision-making process of the Midtown government?

Moving a 0-100 slide bar: 0 = definitely not, 100 = definitely yes

Page 5

[Manipulation check] Have you seen the information below from any previous part of this survey?

“Local and state government have more corruption than we assumed”

- Yes
- No

Page 6: Demographics

Are you...

- Male
- Female

Do you consider yourself to be...

- White, not Hispanic or Latino
- Black, not Hispanic or Latino
- Hispanic or Latino
- Asian, not Hispanic or Latino
- Other

Your age: _____

How would you describe your political views as of today?

- Very liberal
- Liberal
- Moderate
- Conservative
- Very conservative

What was your total household income before taxes during the past 12 months?

- Less than \$25,000
- \$25,000 to \$34,999
- \$35,000 to \$49,999
- \$50,000 to \$74,999
- \$75,000 to \$99,999
- \$100,000 to \$149,999
- \$150,000 or more

What is the highest level of education you have completed?

- Less than high school
- High school/GED
- Some college
- 2-year college degree
- 4-year college degree
- master degree
- doctoral degree
- Professional Degree (JD, MD)

This is just to screen out random clicking. Please move the slide to the answer of the following question: $17 + 63 = ?$

Do you think that global warming is happening?

- Yes
- No
- Don't know

Assuming global warming is happening, do you think it is...

- Caused mostly by human activities
- Caused mostly by natural changes
- Neither because global warming isn't happening

[End of Survey]

Appendix C Sample

	Mean	SD	Min	Max	Randomization Check (P-value)
Female	0.48	0.50	0.00	1.00	0.73
White	0.71	0.46	0.00	1.00	0.10
Black	0.13	0.33	0.00	1.00	0.56
Hispanic	0.06	0.24	0.00	1.00	0.10
Asian	0.08	0.28	0.00	1.00	0.06
Other	0.02	0.14	0.00	1.00	0.92
Ideology	2.76	1.17	1.00	5.00	0.41
Age	39.85	12.82	18.00	91.00	0.93
Education	4.51	1.36	1.00	8.00	0.28
Income	3.73	1.72	1.00	7.00	0.73
GW	0.75	0.60	-1.00	1.00	0.61
GWH	0.69	0.56	-1.00	1.00	0.45
Climate Change Beliefs	0.72	0.52	-1.00	1.00	0.72

Note: GW refers to the question “Do you think global warming is happening?” (yes = 1, don’t know = 0, no = -1); GWH refers to the question “Assuming global warming is happening, do you think it is...” (caused mostly by human activities = 1, caused mostly by natural changes = 0, Neither because global warming isn’t happening = -1). Climate change belief takes the average value from GW and GWH. *P*-value in randomization check was obtained by ANOVA *F*-test.