NBER WORKING PAPER SERIES

TRUST AND HEALTH CARE-SEEKING BEHAVIOR

Michael E. Darden
Mario Macis

Working Paper 32028
http://www.nber.org/papers/w32028

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
January 2024, Revised May 2024

We acknowledge funding from the Hopkins Business of Health Initiative (HBHI). This study was approved by the Johns Hopkins Homewood IRB (HIRB00017075). We pre-registered our survey at the American Economic Association registry (AEARCTR-0011214). We thank Marcella Alsan, Joanne Kenen, Luigi Guiso, Jania Marshall, Daniel Polsky, and Luigi Zingales for their helpful comments and references. Special thanks to Theodore (Jack) Iwashyna for his extremely helpful feedback on the survey. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

Trust and Health Care-Seeking Behavior
Michael E. Darden and Mario Macis
NBER Working Paper No. 32028
January 2024, Revised May 2024
JEL No. I11,I12,I14,I18

ABSTRACT

Trust is a foundational yet largely understudied topic in the economics of health care. We present results from a nationally representative survey of American adults, guided by a simple theoretical model expressing health care-seeking behavior as a function of economic and behavioral fundamentals and highlighting the role of trust. We report several findings. First, we document a strong association between trust in the health care system and both retrospective and anticipated care-seeking behavior across various scenarios, including routine check-ups and vaccinations. Our results suggest a primary role of trust, independent of factors such as access to care or knowledge about its importance. Second, the impact of trust on health care utilization is similar in magnitude to that of factors such as income and education, long recognized as crucial in the existing literature. Third, the relationship between trust and care-seeking behavior appears to be mediated by key mechanisms from our theoretical framework, notably individuals' beliefs about the system's capabilities and their personal disutility from medical visits. Fourth, we ask respondents about trust in specific health care sectors, finding that the results hold when focusing on trust in doctors, nurses, or hospitals but not when focusing on trust in insurers. Finally, we find no differential relationship between trust and care- seeking for Black respondents, but we find important differences by age and political affiliation. Our findings have significant policy implications, especially as trust in medical and scientific expertise becomes harder to establish.

Michael E. Darden
Johns Hopkins University
Carey Business School
555 Pennsylvania Ave.
20001
Washington, DC 20001
United States
and NBER
mdarden4@jhu.edu

Mario Macis
Johns Hopkins University
Carey Business School
1717 Massachusetts Ave, Office 359
Washington, DC 20036
and IZA
and also NBER
mmacis@jhu.edu

A randomized controlled trials registry entry is available at
https://www.socialscienceregistry.org/trials/11214

It is clear from everyday observation that the behavior expected of sellers of medical care is different from that of business men in general. (. . .) The customer cannot test the product before consuming it, and there is an element of trust in the relation. -Arrow (1963)

1 Introduction

A distinctive feature of health care markets, recognized by Arrow (1963), is that a physician, the supplier of medical services, is expected to act in the patient's best interest. This relationship is even more complex given the inherent characteristics of health care: the pervading uncertainty, the pronounced asymmetric information between consumer (the patient) and provider, the infrequent nature of certain medical interactions, and the potential for exceptionally high stakes, often concerning life or death. All these factors underscore *trust* as an indispensable prerequisite in this domain.[1] Furthermore, within the United States health care system, patients are expected to place their trust not only in medical providers but also in other critical components like insurers, pharmaceutical companies, and regulators. A breakdown in trust in even just one of these elements can potentially precipitate a cascading erosion of confidence in the entire health care system.

Unfortunately, trust in medical and, more broadly, scientific expertise is increasingly difficult to establish (Baker, 2020). Indeed, with the COVID-19 pandemic, trust has generated significant attention as both a component of culturally competent care and as a broader factor in patients' willingness to seek care and adhere to a course of treatment (Cope et al., 2022). Yet, despite the increasing focus on the importance of trust in the health care sector, studies in economics analyzing how varying levels of trust can directly influence care-seeking behaviors are scarce.

In this paper, we explore the relationship between trust and health care-seeking behavior. We formulate a theoretical model that expresses health care-seeking behavior as a function of economic and behavioral fundamentals, including expectations, preferences, and constraints. We hypothesize that trust operates through two of these mechanisms: beliefs about the health system's ability to improve one's health (i.e., the production technology of health through health care) and the disutility associated with visiting a physician. That is, trust may correlate with any number of mechanisms that drive behavior, but we hypothesize that trust will work through the beliefs and disutility mechanisms. Guided by this framework, we devised a survey designed to capture measures of these fundamentals and the nuanced aspects of trust in health care. Administered to a nationally representative sample of Americans, the survey generated a rich dataset that offers new insights into how trust shapes individual health care decisions. Primarily, we measure trust using subjective assessment questions from the respondent-specific, but we ask an open-ended question about health care system trust, and we employ textual analysis and ChatGPT to identify domains of trust (e.g., financial motivations). We

[1]The Cambridge Dictionary defines trust as the belief that "someone is good and honest and will not harm you." Economists have adopted similar definitions and have long recognized the importance of trust as an enabler of mutually beneficial cooperation and exchange. According to Arrow (1972), "Virtually every commercial transaction has within itself an element of trust". Gambetta (2000) writes that "trusting a person means believing that when offered the chance, he or she is not likely to behave in a way that is damaging to us," Sobel (2002) states that "trust is the willingness to permit the decisions of others to influence your welfare," and "Levels of trust determine the degree to which you are willing to [...] rely on the advice and actions of others", and Sapienza & Zingales (2012) define trust as "the expectation that another person (or institution) will perform actions that are beneficial, or at least not detrimental, to us regardless of our capacity to monitor those actions".

measure behavior across diverse medical contexts, ranging from routine check-ups to critical decisions such as vaccinations.

Trust and more broadly, social capital, are inherently difficult to manipulate exogenously (Durlauf, 2002). Even when certain events might arguably affect trust, disentangling the role of trust from other concurrent changes remains challenging (Alsan & Wanamaker, 2018). Our approach is to follow a recent and growing strand in economics that leverages surveys to understand economically relevant behaviors (Stantcheva, 2023). We employ a theory-driven approach to guide our survey construction and, to gain deeper insights into how individuals reason about trust in the context of health care, we include an open-ended question in which respondents are given the opportunity to explain their motivations (Ferrario & Stantcheva (2022), Haaland et al. (2024)).

In our data, trust in the US health care system tends to increase with age, education, and retirement status, while it decreases with lack of insurance, occurrences of unexpected medical bills, and subjective assessments of personal health. Relating trust to care-seeking behaviors, we report five main sets of findings. First, a strong association exists between higher levels of trust in the health care system and an increased likelihood of seeking care, both retrospectively and anticipated. This relationship is consistent across various medical behaviors, from routine check-ups to vaccinations. For instance, high trust respondents are 24.8 percentage points more likely to have received a flu shot in the past year, 7.2 percentage points more likely to have received a check-up, and 17.8 percentage points more likely to have received two COVID-19 vaccines and one booster shot (i.e., fully vaccinated). Second, the *conditional* correlation between trust and health care utilization is similar in size to that of income and education, factors that have been extensively studied in the literature as determinants of health care utilization.[2] Third, consistent with our theoretical framework, our results indicate that trust operates through the key mechanisms of individuals' beliefs about the medical system's effectiveness in managing their health, and their personal disutility for medical visits. Fourth, we find that the correlations between trust and behavior remain consistent when focusing on trust in doctors, nurses, and hospitals, which is not surprising given the significant interactions involved with these providers in the care-seeking behaviors we consider. In contrast, variation in trust in health insurers is much less associated with care-seeking behavior. However, trust in the Centers for Disease Control and Prevention (CDC) has a strong association with the uptake of flu shots. Lastly, we find no differences in the relationship between trust and care-seeking behavior between Black and White respondents, but we do find important differences by age and political beliefs. For example, conditional on observable characteristics, low-trust registered Republicans are 21 percentage points *more* likely to be unvaccinated against COVID-19 relative to low-trust registered Democrats, but high-trust Republicans are 4.3 percentage points *less* likely to be unvaccinated relative to high-trust Democrats.

The associations that we document are robust to a rich set of controls. Specifically, our regressions include controls for education, income, and health insurance coverage, which suggests that the association between low trust and reduced health care-seeking behavior is more indicative of a reduced willingness to seek care rather than an inability to access care or inadequate knowledge of the importance of seeking care. Standard bounding exercises (Oster, 2019) suggest that selection on unobserved factors would need to be dramatically

[2]We also find significant correlations between trust and perceived value of life, insurance status, and individual levels of patience and time inconsistency. We discuss these results in detail in Section 3.

higher than the selection on our rich set of observed controls to nullify the relationship between trust and care-seeking. Additionally, our estimated impact of trust on anticipated care-seeking behaviors remains robust even when estimating "dynamic" regressions that include controls for past care-seeking behavior, reinforcing our interpretation that current trust drives these decisions independently of previous behaviors. Because random variation in trust is difficult to generate, especially given that trust is likely produced over a long period of time, we interpret our results as providing strong evidence that cross-sectional variation in trust significantly explains care-seeking behavior and that our results are not likely driven by unobserved factors or reverse causality.

Our work contributes to three main strands of literature: the literature that focuses on the role and implications of trust in economic behavior; the work in economics and public health devoted to understanding the determinants of (and disparities in) health and health care-seeking behavior; and the literature, mostly from public health, on trust in physicians and the health system. Most of the economics literature on trust investigates the relationship between aggregate levels of trust (viewed as a component of "social capital") and economic activity,[3] or studies the determinants of trusting behavior in the laboratory.[4] Our paper joins a much more limited stream that considers trust as an individual-level trait and studies it outside of the laboratory. For example, Alesina & La Ferrara (2002) use individual-level data from the US to describe the correlates of individuals' overall level of trust in others, and Butler et al. (2016) study the relationship between individual trust and economic outcomes (income) using cross-country data from Europe. Additionally, research by Guiso, Sapienza, and Zingales (Guiso et al. (2008), Guiso et al. (2013)) focused on trust in financial institutions, providing insights into how trust impacts interactions with and perceptions of these institutions.[5] Similar to our approach, these authors use surveys to measure trust, and view individuals' trust at a given point in time as a pre-determined trait possibly influencing behavior.[6]

An extensive amount of research in the social sciences has explored the factors affecting health, especially health disparities (Marmot, 2005). In the field of economics, significant attention has been given to the impact of education, income, and race on health. Income and education have been found to be strong predictors of health outcomes (see, e.g., Deaton (2002), Chetty et al. (2016), Lleras-Muney (2022) and references therein); this occurs through many channels, including the influence of these factors on health care utilization. One contribution of our study is to assess how trust, as a factor related to care-seeking behavior, compares in magnitude to other more extensively researched determinants like income and education. There is also a large

[3]Putnam & Helliwell (1995) showed that different levels of trust explained a large share of historical differences in economic development in Italy. Similarly, Fukuyama (1996) argued that differences in aggregate trust explain cross-country differences in economic success. Knack & Keefer (1997) and Zak & Knack (2001) find associations between trust and GDP growth rates, Guiso et al. (2008) find that greater trust correlates with the size of a country's stock market, and Guiso et al. (2009) find that bilateral trust correlates with cross-country trade patterns.

[4]The experimental literature on trust received significant momentum from two foundational papers by Camerer & Weigelt (1988) and Berg et al. (1995). These works employed the "trust game" and the "investment game," respectively, setting the stage for a wealth of subsequent research. Comprehensive reviews of this extensive body of literature can be found in works by Bohnet (2010) and Camerer (2011).

[5]Sapienza and Zingales have developed the Financial Trust Index (http://www.financialtrustindex.org/index.htm), a tool designed to measure and track the confidence of Americans in the financial sector and its institutions. This index provides insights into the evolving perceptions and attitudes of the public towards banks, stock markets, and other financial entities, reflecting broader trends in trust and confidence in the financial system. We are grateful to them for sharing their survey instrument, which informed the design and structure of our own survey.

[6]Glaeser et al. (2002) propose an economic approach where investment in trust (social capital) by individual members of society is a rational decision based on expected cost-benefit calculations influenced by past experience.

literature on health disparities by race in the U.S., linked to such factors as unequal access to health care and discrimination.[7] This body of work highlights how historical injustices, such as the Tuskegee Syphilis Study, have ingrained a deep-seated mistrust in the health care system among African Americans (See Washington (2006), Halbert et al. (2006), LaVeist (2011) and, more recently, Alsan & Wanamaker (2018)). More broadly, numerous papers in the public health and medical literature explore trust in health care. The focus primarily lies on patients and their trust in providers, specifically physicians and nurses, and the association of this trust with health-related behaviors and outcomes.[8]

The scarcity of economics research specifically addressing trust in health care represents a notable gap in the literature. Just as trust in financial institutions has been shown to be a critical factor for the functioning and stability of financial systems, understanding trust in health care systems and its various actors and institutions is, arguably, equally important. Trust in health care can impact patient outcomes, potentially influencing the effectiveness of public health initiatives and the overall efficiency and equity of health care delivery. It can shape patient behavior, compliance with medical advice, and the public's response to health policies and crises. Therefore, economic research focusing on trust within the health care sector can provide valuable insights, similar to those gained in the study of financial systems, potentially leading to more effective and equitable health care systems. Indeed, our results suggest that low trust results in low health care utilization; because current levels of health care utilization (e.g., vaccination rates, rates of annual check-ups) are below optimal levels, it appears important to understand trust and its implications for behavior in the health care context.

This paper is structured as follows. In the next section, we present a simple theory of medical care demand, incorporating trust as a determinant of care-seeking behavior. Section 3 describes our survey and presents our results. Section 4 concludes with a discussion of the implications of our findings for both future research and policy.

2 Seeking Care and Trust

We propose a theory of elective medical care demand in which an individual trades off both current consumption and the disutility associated with medical care for the potential, but uncertain, health transformation that medical care offers. Individuals seek care if the expected health benefits are greater than the contemporaneous costs. If we define trust as the belief that another person or institution will behave in a way that is beneficial to us, thus permitting their advice or actions to influence our welfare,[9] it follows that those who completely trust the health care system are likely to form different expectations regarding the transformative properties of medical care on health relative to distrustful individuals. Similarly, those who are distrustful of health care will likely experience larger disutility from a medical visit relative to those who are completely trusting. The theory yields several testable implications that guide our survey and empirical work.

[7] See, e.g., Balsa & McGuire (2001), Nazroo (2003), LaVeist et al. (2011), Chetty et al. (2016), Bailey et al. (2017), and Bailey et al. (2021).

[8] See, e.g., Mechanic & Schlesinger (1996), Blendon et al. (2014), Khullar (2019). For a review of the literature on the determinants of patient trust in health care providers, see Murray & McCrone (2015). For a recent overview of current issues related to trust in health care in the United States, see Baker (2020) and the six Viewpoints published in the same issue of JAMA.

[9] This definition combines those of Gambetta (2000), Sobel (2002), Sapienza & Zingales (2012) and Sapienza et al. (2013).

Consider a two-period model of care seeking in which an individual enters period one in health state $h_1 \in \mathbb{R}$, where higher h indicates better health. Based on h_1, an individual makes the binary medical care decision denoted $m_1 \in \{0, 1\}$. Medical care is costly both in a pecuniary sense through price p_m, but also in a disutility sense, which captures the potential for hassle, pain, discrimination, shame, and other non-monetary burdens possibly associated with visiting a physician. The disutility term may also simply capture the stress associated with uncertainty surrounding the experience.[10] The benefit of medical care is the transformative effect of care on health, which implies that the demand for medical care is in fact a derived demand for health (Arrow, 1963; Grossman, 1972). Let the state transition function between periods one and two be $f(h_2|h_1, m_1)$, where the evolution of health depends on the period one medical care decision. To make the optimal medical care decision, an individual must forecast the evolution of health conditional on medical care and current health h_1. Finally, for simplicity, we assume a static budget constraint and exogenous income I_t.

Let utility in period one be a function of composite consumption C_1 and health h_1.[11] We make the simplifying assumption that the disutility of medical care term, $\phi(m_1)$, is additively separable from other utility and equal to zero in the event of no care (i.e., $\phi(m_1 = 0) = 0$). Under this structure, after substituting the budget constraint, the value of health state h_1 in period one is:

$$V(h_1) = \max_{m_1} \Big(u(I_1 - p_m m_1, h_1) - \phi(m_1) + \delta EV(h_2) \Big). \tag{1}$$

Assuming that the price of consumption is \$1, an individual receives utility from income net of the pecuniary medical care price, p_m, health, and direct (dis)utility from receiving care $\phi(m_1)$. The final term in Equation 1 is the discounted expected value of future utility taken over the distribution of health, where δ represents the discount factor. In this model, it is optimal to seek care if and only if:

$$\underbrace{\delta\Big(EV(h_2|m_1 = 1) - EV(h_2|m_1 = 0) \Big)}_{\text{Marginal Benefit of Care}} > \underbrace{\Big(u(I_1, h_1) - u(I_1 - p_m, h_1) + \phi \Big)}_{\text{Marginal Cost of Care}}. \tag{2}$$

Medical care potentially improves health via the state transition function $f(.)$, and improved health is valuable via future utility. Thus, the marginal benefit of care is the change in discounted expected utility generated through $f(.)$, and the marginal cost of care is the loss of utility associated with a reduction in general consumption plus the disutility of receiving care ϕ.

2.1 Incorporating Trust

Our simple model yields important insights into the care-seeking decision as well as the role of trust in health care settings. In particular, Equation 2 highlights two economic mechanisms behind care-seeking behavior that

[10] However, it's important to note that both in our theoretical framework and in the survey, we also accommodate the possibility that individuals may derive utility, for example, experiencing comfort, reassurance, or other positive effects from their interactions with physicians.

[11] In the canonical Grossman (1972) model, health has both a consumption and investment component. In our case, the consumption rationale is sufficient to generate the empirical predictions we take to the survey data. Halliday et al. (2019) suggest health is predominantly a consumption good after the age of 62 and that a consumption motive for health investment is needed to explain the increase in health care expenditures later in life.

relate to the economic concept of trust. First, the marginal benefit of care depends on an individual's beliefs regarding future health conditional on medical care. To incorporate trust, we define:

$$\tilde{E}\Big(V(h_2|m_1,T)\Big) = \int \tilde{f}(h_2|h_1,m_1,T)V(h_2)dh_2,$$

where the discounted expected value of future utility is allowed to vary by trust ($T \in \{0,1\}$) through the subjective probability distribution of health conditional on medical care, $\tilde{f}(h_2|h_1,m_1,T)$. Trusting and/or non-trusting individuals may or may not have rational expectations regarding the distribution of future health conditional on medical care, and we emphasize that $\tilde{f}$ represents subjective beliefs. We hypothesize that trusting individuals may hold beliefs on the distribution of health with medical care that stochastically dominate the beliefs held by non-trusting individuals. That is, for a given level of health h_1, trusting individuals may subjectively feel that the transformative power of medical care is greater relative to non-trusting individuals. If so, then the marginal benefit of care is larger for trusting individuals and, all else equal, they are more likely to seek care.

Second, as discussed above, the economic literature highlights how the experience of a transaction may depend on trust. In our model, the experience of a physician visit is captured through the disutility term, which we allow to vary by trust, $\phi(T)$. We hypothesize that trusting individuals may be more comfortable, and thus experience less disutility, as patients in clinical settings, which would imply that the marginal cost of care is smaller and that trusting individuals would be more likely to seek care.

We rewrite Equation 2, indexing the relevant mechanisms by trust:

$$\underbrace{\delta\Big(\tilde{E}V(h_2|m_1=1,T) - \tilde{E}V(h_2|m_1=0,T)\Big)}_{\text{Marginal Benefit of Care}} > \underbrace{\Big(u(I_1,h_1) - u(I_1-p_m,h_1) + \phi(T)\Big)}_{\text{Marginal Cost of Care}}. \tag{3}$$

Trust is related to care decisions because it can shift the marginal benefit of care (through beliefs), the marginal cost of care (through disutility), or both. Trust may also be correlated with other economic mechanisms that drive care-seeking behavior. For example, the value of life, $V(h)$, may be correlated with trust through the dynamics of health—contemporaneous health is a function of past health, past health depends on past care decisions, and past care decisions depend on trust. However, conditional on contemporaneous health, it is not clear how the value of life would vary by trust in health care. Similarly, if trusting individuals are more likely to have employer-sponsored insurance, then trust and medical care prices would be correlated. Finally, because the benefits of care are realized in the future, correlation between trust and time preferences, either the degree of patience or the (unmodeled) degree of time consistency, may generate different patterns of care by trust.

3 Data and Results

Individual-level data on care-seeking behavior and levels of trust are rare in nationally representative sources of data. Rarer still are data that also measure mechanisms that drive behavior, including beliefs about the impacts of medical care on health and the perceived disutility associated with a physician visit. As a result,

we follow a burgeoning survey research tradition within economics (Stantcheva, 2023) to measure behavior, trust, and mechanisms relevant to our theory. With these data, we begin by measuring trust, both through direct survey questions and through textual analysis of open-ended responses. Next, we relate trust to a rich set of individual-level socioeconomic and demographic characteristics. Then, we explore unconditional and conditional relationships between trust and behavior, including heterogeneity in these relationships. Finally, we explore the mechanisms through which trust operates.

3.1 The Trust Survey

Our data come from a contract with Social Science Research Solutions (SSRS), a survey research firm that conducts national, probability-based surveys twice per month. Our survey ran from July 21st, 2023, through July 24, 2023, among a sample of 1,235 respondents. SSRS recruited participants randomly based on a nationally representative address-based sampling design. The sample was representative with respect to age, gender, race and ethnicity, education, Census region, political party registration, and language. We also over-sampled Blacks and Hispanics to ensure sufficient sample sizes of these groups. Of the 1,235 respondents, 96% completed the survey on the Internet, with the remainder by telephone. We use SSRS-provided survey weights throughout our analysis. We trimmed our final estimation sample to 1,115 respondents who provided complete surveys with no missing responses. In Appendix Table 1, we show that our main trust and economic measures do not systematically vary by sample inclusion. As a summary measure of our analysis of missing values, the p-value on the t-test of equal mean survey weights between those in our final sample (n=1,115) and those omitted for missing values (n=120) is 0.529. Appendix Table 2 shows that survey-weighted means of selected demographic characteristics are very close to survey-weighted means from the 2021 American Community Survey.

3.2 Evidence on Trust in the Health Care System

3.2.1 Overall Trust: Data and Textual Analysis

To measure overall trust, we asked respondents the following question on a 0 (No Trust) to 10 (Complete Trust) scale:

How much do you TRUST the US health care system as a whole?

Figure 1 presents the weighted distribution of responses to this question, where we construct frequency weights by multiplying the probability survey weight by 100 and using only the integer value (Heeringa et al., 2010). The overall mean of this question was 5.72. To classify our sample participants based on their varying degrees of trust in the health care system, we break the distribution of overall trust into quartiles based on this distribution, which are highlighted in Figure 1 by the three vertical lines. The quartiles of trust are [0,4], [5,6], [7], [8,10], where the last quartile represents the highest level of trust.

In this paper, we take trust at a point in time as given, and we study how cross-sectional variation in trust, both overall and in specific sectors of the health economy, relates to variation in care-seeking behavior. A separate and important issue is the production of trust, which requires a dynamic, life-cycle perspective that is beyond the scope of this paper. Instead, to gain some context on how Americans conceptualize the

notion of trust in health care institutions, we followed our overall trust question, depicted in Figure 1, with an open-ended field requesting a brief explanation of their answer. Figure 2 presents a word cloud from these answers, visualizing the frequency of words used by respondents when explaining their trust levels in the overall health care system.[12] The most prominent words, which are larger and more central, include "doctor" and "people," indicating these were mentioned most often. Other significant words such as "insurance", "money," "expensive," and "cost" suggest concerns or considerations about the economics of health care. Words like "good," "feel," and "need" reflect personal sentiments and perceived necessities regarding the system.

To obtain insights into the determinants of trust in the health care system, we utilized ChatGPT to analyze the comments, sorting them into thematic domains.[13] Figure 3 displays the results of a multiple regression using overall trust as the dependent variable, scaled from 0 to 10, against indicators for comments within each domain. The figure shows domains on the y-axis and the estimated coefficient values on the x-axis. A red vertical line marks the zero point, indicating no correlation between the presence of a given theme in the comments and the respondents' expressed overall trust. Points to the left of this line represent a negative association with trust, while points to the right indicate a positive association. Notably, "Communication" has a coefficient of about -2, suggesting that respondents who discussed communication issues generally had lower trust levels in the health care system. Similarly, "Financial Motivations" is also to the left, and more precisely estimated, indicating an association with lower trust. On the other hand, "Personal Experiences" and "Patient Safety" are on the positive side of the spectrum, denoting that mentions of these domains were linked to higher trust levels in the health care system.

3.2.2 Sector Specific Trust

We followed the overall health care system trust questions with similar trust questions for several distinct sectors of the health care system and, for reference, the US Government. We uncovered substantial variation in trust across these institutions. Histograms and quartile cut points of the sector-specific trust questions are shown in Figures 4 and 5.[14] The survey revealed that entities such as nurses and doctors are highly trusted, with mean trust ratings of 7.26 and 6.81, respectively. On the other hand, health insurance companies and pharmaceutical companies are among the least trusted, with mean trust ratings of 4.27 and 4.10. This disparity in trust levels reflects shifts in the overall distributions of scores. For example, sectors with lower trust tend to have a large proportion of 'zero' scores, pointing to a complete lack of trust by some survey respondents. Conversely, the more trusted sectors, like nurses and doctors, often received top scores of '9' and '10', reflecting high levels of public confidence.

We focus on the overall health care system trust question to establish how trust affects care giving. In Section 3.6, we return to the sector-specific care distributions to investigate heterogeneity in trust and behaviors (e.g., how trust in public health agencies such as the CDC affects vaccination rates).

[12] The algorithm used to produce the word cloud excluded common stopwords as well as the following words, which were included in the survey question: "health", "care", "healthcare", "trust", "system", and "US".

[13] The domains identified and the methods employed by ChatGPT to classify the comments are listed and described in the appendix.

[14] Appendix Table 4 presents the overall mean for each sector-specific trust variable, as well as the mean sector-specific trust level in each quartile of the overall trust question from Figure 1.

3.2.3 Demographic and Socioeconomic Correlates of Trust

Tables 1 and 2 present summary statistics on demographic and socioeconomic characteristics, both overall and by the overall trust quartile. To test how each characteristic varies by overall trust, we regress each variable on indicator variables for the highest three trust quartiles, and we report the p-value on the F-test that these three coefficients are zero. Here, we describe a set of relevant findings, focusing, for simplicity of exposition, on comparisons between the two extreme quartiles of trust in the health system.

In Table 1, in our final estimation sample of 1,115 respondents, age is significantly increasing in trust. The mean age of respondents in the highest quartile of trust is over ten years older (53.4 vs. 43.3) relative to the lowest trust quartile. For females, 56.7% are represented in the lowest trust group, dropping to 50.5% in the highest. Conversely, those identifying as "Other Gender" constitute 1.7% in the least trusting group but are absent in the most trusting (though these individuals represent only a few observations in the data). The share of Black respondents is increasing in trust (0.10 in the lowest quartile; 0.153 in the highest quartile). The share on respondents in the highest trust quartile who claim that their health is "excellent" is significantly higher than in the lowest trust quartile (0.147 vs. 0.089). Finally, while there are not significant differences in the incidence of many chronic health conditions by trust, self-reported anxiety and/or depression is significantly decreasing in trust.

Table 2 presents similar statistics on socioeconomic characteristics. Looking at education, there are not statistically significant different proportions of various highest education groups by trust; however, there is a significantly lower percentage of college graduates (or more) at 29.4% in the lowest trust quartile, compared to 34.8% in the most trusting group. With respect to income, earnings are hump-shaped in trust, with the highest proportion of high earners in the third quartile of trust. Among full-time employees, 46.9% are in the lowest trust quartile, contrasting with a lower 37.4% in the highest trust group. Conversely, retirees make up 13.6% of the least trusting bracket, but this percentage rises significantly to 34.4% in the most trusting quartile. With respect to geography, the fraction of respondents living in a non-metro area is significantly falling in trust. Finally, the share of self-reported Democrats is dramatically higher in the highest trust quartile relative to the lowest quartile (0.459 vs. 0.207).

To the extent that the characteristics in Tables 1 and 2 are predictive of care-seeking behavior, evidence from these tables suggest that controlling for demographic and socioeconomic characteristics in a regression of care-seeking behavior on trust may significantly change the estimated coefficients on trust.

3.2.4 Trust and Care-Seeking Behavior: Correlations

To investigate the role of trust in patient behavior, we asked respondents a series of retrospective and anticipated medical care questions, including measures related to receiving a flu shot, an annual physical examination, filling a prescription, and the COVID-19 vaccine. These inquiries are specifically focused on preventive, non-emergency health care behaviors. We focus on these areas as utilization for acute, urgent care often leaves individuals with little to no choice, rendering it less effective for assessing the role of trust in care-seeking behavior.

Table 3 shows the relationships between individuals' past and anticipated health behaviors (weighted means) and their overall levels of trust in the health care system, measured across four quartiles. A sharp relationship

is evident between receiving a flu shot and attending check-ups with increasing levels of trust. Specifically, the average percentage of individuals who received a flu shot in the last year is 48% overall, with a stark increase from 35.5% in the quartile with the lowest trust to 68.4% in the highest trust quartile. The pattern for receiving a check-up in the past year is similar, rising from 64.8% in the lowest trust quartile to 78.7% in the highest. However, this trend does not hold for filling prescriptions, where the relationship is less pronounced and does not show a significant increase with trust levels; the averages range more narrowly from 71.2% to 75.5% across the trust quartiles. The anticipated behavior for getting a flu shot and going for a check-up also indicates a positive correlation with trust levels, with the intention to get a flu shot ranging from 32.6% in the lowest trust quartile to 66.7% in the highest. Similarly, for check-ups, the average anticipation rate increases from 67.4% in the lowest quartile to 85.3% in the highest. For COVID-19 vaccine status, the data again show a pronounced difference based on trust levels: only 19.6% of individuals in the lowest trust quartile are fully vaccinated (as defined by receiving both base shots plus at least one booster) compared to 66.4% in the highest trust quartile. Concurrently, there's a noticeable decrease in the proportion of unvaccinated individuals as trust increases, reinforcing the strong correlation between trust in the health care system and the likelihood of being vaccinated.

Figure 6 displays anticipated health behaviors, again sorted by overall trust in the health care system (6a and 6c) and, for comparison, by annual income brackets (6b and 6d). The figure shows that the associations between higher trust levels—or higher income—and the likelihood of engaging in health-maintaining behaviors such as getting a flu shot or an annual check-up (6a. and 6b.) are directionally similar. Both trust and income show an increase in positive health behaviors with higher levels, although the association by income is less dramatic.[15] The pattern of COVID-19 vaccination status (6c. and 6d.) also reflects this trend, with higher proportions of fully vaccinated individuals (and a lower proportion of unvaccinated) in the higher quartiles of trust and income, although the gradient is, again, steeper for trust.

These patterns suggest a positive association between trust and health care utilization similar in magnitude to the association between income and utilization. Analyzing this relationship important because it underscores the potential of trust as a meaningful factor in health care engagement, akin to economic capability.

3.2.5 Theoretical Channels: Beliefs and Disutility

Table 3 and Figure 6 provide unconditional evidence that trust may be an important driver of care-seeking behavior. Our theory says that such behavior should depend on several mechanisms and that trust may operate through two of them: beliefs and disutility. Here, we emphasize that a key feature of our survey is the measurement of these mechanisms. To measure subjective beliefs about the transformative nature of medical care, we asked respondents:

> *In your opinion, does your local health care system have the resources and expertise to manage your health effectively?*

Respondents were posed this question on a 0 to 10 scale, where 10 represents the greatest belief in the local health care system to manage health. The question is framed relative to one's own health needs and challenges.

[15] Patterns for retrospective flu shots and annual physicals over the past year are similar.

Table 3 shows that the mean of this question is 6.415 and that the mean belief is monotonically increasing in trust (4.258 in the lowest quartile; 8.249 in the highest quartile). Next, to measure the experience of care, using a Likert scale from 1 (very pleasant) to 5 (very unpleasant), we ask respondents:

> *Please rate how pleasant or unpleasant you find going to see a doctor.*

We capture the disutility of care with the mean proportion of respondents who answer either unpleasant or very unpleasant. The mean in Table 3 is 0.185, and this mean is monotonically decreasing in trust (0.378 in the lowest quartile; 0.058 in the highest quartile). Evidence in Table 3 suggests that trust is strongly related to both belief and disutility mechanisms, as measured in our survey.

As noted above, trust may also be correlated with other mechanisms that drive care-seeking behavior. To capture potential price effects, we measure the share of respondents who lack health insurance. As shown in Table 3, this share is significantly decreasing in trust. We measure the value of life (i.e., $V(h)$) with a standard risk reduction question. Specifically, we ask:

> *Consider a hypothetical medical innovation that could reduce your annual risk of death by 1%. How much would you be willing to pay per year for this treatment?*

A significant fraction of individuals (0.392) entered a value of \$0 to this question. Thus, in Table 3, we present both the fraction of non-zero responses and the log of the entered dollar value conditional on this value being greater than zero. Both terms are increasing in trust. On the extensive margin, the fraction with non-zero answer increases from 0.497 in the lowest trust quartile to 0.687 in the highest quartile. Similarly, the dollar value conditional on it being positive increases by roughly 40% between lowest and higher quartile.

We also measure respondents' time preferences with two questions about intertemporal tradeoffs. Specifically, we ask respondents:

> *Suppose you have won a prize of \$1000, which you can claim immediately. However, you have the alternative of waiting one year to claim the prize. If you do wait, you will receive more than \$1000. What is the smallest amount of money, in addition to the \$1000, you would have to receive one year from now to convince you to wait rather than claim the prize now?*

We further ask respondents the same question, replacing the time frame from one year to one month. We randomized the order in which these questions were asked. Courtemanche et al. (2015) show how one can solve for both the standard discount rate as well as the extent to which individuals are present biased using responses to these questions. Using their notation, δ captures the discount rate and β measures the degree of time consistency. Higher values of discount rate δ imply more patience; values of β closer to one imply less present bias (more time consistency). In the last two rows of Table 3, we show that patience is increasing in trust ($\delta = 0.683$ in the lowest quartile; $\delta = 0.810$ in the highest quartile), and that time consistency is increasing in trust ($\beta = 0.639$ in the lowest quartile; $\beta = 0.727$ in the highest quartile).

3.3 Trust and Care-Seeking Behavior: Regression Analyses

To investigate the role of trust in care-seeking more formally, we estimate a series of regressions of the form:

$$y_i = \alpha_0 + \alpha_1 1[\text{Second Quartile}] + \alpha_2 1[\text{Third Quartile}] + \alpha_3 1[\text{Highest Quartile}] + X_i\theta + \epsilon_i, \tag{4}$$

where y_i represents a given retrospective or anticipated behavior of individual i. The α coefficients capture how the mean behavior changes in each trust quartile relative to the lowest quartile, and X_i captures control variables. In all regressions, our set of controls in X_i include respondent age, gender, education, race and ethnicity, household income, marital status, employment, subjective health, objective health conditions, geography, and political affiliation. Using respondent zip code information, we also include three area-level characteristics: adjusted Medicare mortality, adjusted Medicare reimbursement, and the number of Medicare enrollees in the area. All regressions control for these characteristics.

While we do not claim that trust is exogenous, Equation 4 can be interpreted as a reduced-form of our economic model because the economic mechanisms for behavior (i.e., beliefs and disutility) are omitted.[16] Our goal in Equation 4 is twofold. First, we test whether the correlations in Table 3 and Figure 6 still hold after controlling for X. Second, we more formally gauge the importance of trust relative to other characteristics such as income and education, for which there is a large economics literature on care-seeking.

Table 4 presents results of the α coefficients, along with coefficients on education and household income indicators, for each retrospective and anticipated behavior. Reported coefficients for each behavior are from the same regression. Again, focusing on the highest quartile of trust relative to the lowest, high trust individuals are 24.8 percentage points (pp) more likely to have received a flu shot in the past year ($p < 0.01$); 7.2pp more likely to have received a check-up ($p < 0.1$); and no more likely to have filled a prescription. High trust individuals are 26.1pp more likely to state they will receive a flu shot in the coming year ($p < 0.01$), and they are 12.9pp more likely to state they will go for a check-up ($p < 0.01$); high trust individuals are 16.8pp less likely to be unvaccinated against COVID-19 ($p < 0.01$), and they are 17.8pp more likely to have received two COVID-19 vaccine shots and one booster shot (i.e., fully vaccinated) ($p < 0.01$). Relative to education, the coefficients on trust are of comparable magnitude. For example, with the exception of past year prescription, relative to respondents with less than a high school degree, those with a college degree are 30.2pp more likely to get a flu shot in the next year ($p < 0.01$) and 13.4pp more likely to get a check-up($p < 0.10$); and they are 9.3pp less likely to be unvaccinated against COVID-19 (statistically insignificant) and 16.3pp more likely to be fully vaccinated ($p < 0.05$). In most cases, the magnitudes of the trust variables are as large or larger than those on income. The notable exception are prescriptions, where respondents with income over \$100k/year are 9.8pp more likely to have received a prescription in the past year ($p < 0.05$). It is important to re-emphasize that these regressions include controls for variables such as education, income, and insurance status. Netting out the effects of these controls suggests that the trust coefficients are more indicative of a differential willingness to seek care rather than (in)ability to access care or (lack of) knowledge about the importance of seeking care.

[16] In Section 3.4 below, we estimate a version of Equation 4 that includes controls for beliefs and disutility and we discuss the implications for the interpretation of our results.

3.4 Robustness

3.4.1 Alternative Construction of the Trust Variable

Our specification categorizes the overall trust variable into quartiles, which naturally ensures that each quartile contains an equal number of observations. However, a disadvantage of this method is the uneven distribution of trust scores within each quartile—for instance, scores of 0-4 in the lowest quartile, 5-6 in the second, 7 in the third, and 8-10 in the fourth. To evaluate the robustness of our findings, we undertake two robustness exercises as follows. First, instead using quartiles, in Appendix 3 we plot the health care utilization variables for each trust score level, from 0 to 10 (Appendix Figure 1). Despite the uneven distribution of respondents across these scores, a consistently positive relationship is observed between trust and both retrospective and anticipated health behaviors. This demonstrates that our results were not driven by the choice to use quartiles of the overall trust measure.

Second, instead of using a single variable (the overall trust in the US health care system) we have developed an alternative trust measure using principal component analysis that consolidates multiple trust indicators from our survey, including those specific to doctors, nurses, hospitals, health insurers, Medicare, pharmaceutical companies, and the CDC. The first principal component, which we term "PCA Trust," accounts for 64.31% of the variation in these trust measures. We repeat our econometric analyses using this as the measure of trust and entering it linearly in the regressions, and find very similar results to our main specifications (Appendix Table 10). Additionally, the results remain consistent when we use quartiles of this alternative measure of trust (Appendix Figure 2).

3.4.2 Omitted Variables

First, we examine the sensitivity of our estimated coefficients on trust to the inclusion of controls. In Appendix Tables 4, 5, and 6, we systematically report our regression results while progressively adding sets of controls. We begin by showing results from regressions without controls, followed by including controls for demographics, socio-economic status, health, political views, and area-level characteristics. Our analyses demonstrate that the trust coefficients remain remarkably stable, both in terms of magnitude and statistical significance, across these variations.

Next, to more formally assess the role of unobserved heterogeneity in explaining behavior, we apply the methodology introduced by Oster (2019), and at the bottom of Table 4, we report estimates of δ, the degree of proportional selection generated by unobserved variables that would be required to nullify the coefficient on the highest (fourth) trust quartile. The results indicate that unobserved heterogeneity would have to be substantially more important than selection on the rich set of observable controls included in our regressions to nullify our results. For example, with respect to the past year check-up, selection on unobservables would need to be 3.2 times higher than the selection on our rich set of observed controls. Estimates of δ range from 2.2 to 6.2. These estimates were generated assuming that the maximum r-squared is 1.3 times the r-squared from our regressions that control for X_i.

3.4.3 Reverse Causality

Another important concern in our context is reverse causality. If, on average, people who interact with the health care system have a positive experience with it, past health care utilization could explain current levels of trust and also correlate with future utilization. To address this, we exploit a feature of our survey design in which both past and anticipated future behaviors are recorded. Then, we estimate regressions of anticipated behavior (over the next year) on past behaviors and our trust measures (in addition to our standard controls). If past behavior completely predicts trust, then our trust variables will no longer economically predict future behavior in these "dynamic" regressions (Arellano & Bond, 1991; Bellemare et al., 2017; Arellano & Bonhomme, 2017). We report these results in Table 5. For both obtaining flu shots and scheduling annual check-ups, our findings on trust are attenuated (relative to Table 4), but they remain statistically and economically significant, roughly in line with the estimates of income on anticipated behavior. Conditional on past flu shot, check-up, prescription, and COVID-19 vaccination behaviors, those in the highest trust quartile are 7.6 percentage points more likely to anticipate going for a flu shot in the next year and 7.0 percentage points more likely to anticipate going for a check-up.

Overall, these robustness exercises indicate that trust remains a critical, independent factor in health care-seeking behavior. This holds true even when accounting for past behavior, potential confounders, and different ways to specify the trust variable.

3.5 Behavior and Mechanisms

In our second set of regressions, reported in Table 6, we estimate the relationship between care-seeking behaviors and the hypothesized mechanisms, as outlined in the model in Section 2. Specifically, we estimate:

$$y_i = \theta_0 + \sum_{j=1}^{5} \theta_j M_i + X_i\theta + \epsilon_i, \tag{5}$$

where y_i represents behavior of individual i, θ_1 and θ_2 are parameters on our hypothesized mechanisms through which trust affects care-seeking behavior (i.e., beliefs about the system's effectiveness at managing one's health and disutility of doctor's visits), $\theta_3 - \theta_5$ are parameters on the additional drivers of care-seeking behavior (i.e., value of life, medical prices, and time preferences), and X represents the same set of controls listed above. We proxy for out-of-pocket medical prices with whether an individual has health insurance. Again, for each behavior, coefficients reported in Table 6 are from the same regression. Importantly, in estimating equation (5) we omit our trust variables because these variables work through the proposed mechanisms (i.e., beliefs and disutility).

We find that a one-point increase in the beliefs (resources and expertise) question is positively associated with the three past year behaviors, resulting in a 2.5pp increase in receiving a flu shot ($p < 0.01$), a 1.6pp increase in attending a check-up ($p < 0.01$), and a 1.7pp increase in having a prescription filled ($p < 0.01$). A higher response to the resources and expertise question is also positively associated with planned future health behaviors; specifically, it is associated with a 3.5pp increase in the probability of receiving the flu shot next

year ($p < 0.01$) and a 2.9pp increase in planning to attend a check-up next year ($p < 0.01$). An increase in the resources and expertise question is also correlated with a change in COVID-19 vaccination status: a 1.7pp decrease in the probability of not being vaccinated ($p < 0.01$) and a 1.8pp increase in the likelihood of being fully vaccinated ($p < 0.01$).

Turning to our measure of disutility associated with seeing a doctor, we find that claiming a visit to be unpleasant or very unpleasant is associated with a 9.0pp decrease in the probability of having taken a flu shot in the past year ($p < 0.05$), a 5.9pp decrease in the probability of having had a check-up (statistically insignificant), and a 4.4pp increase in the probability of having had a prescription (statistically insignificant). Regarding planned behaviors for the next year, the disutility variable is associated with an 8.3pp decrease in the probability of planning to get a flu shot ($p < 0.05$) and a 4.6pp decrease in the likelihood of planning a check-up (statistically insignificant). The unpleasant variable also corresponds to a 1.3pp decrease in the probability of being fully vaccinated ($p < 0.01$), while its impact on the likelihood of not being vaccinated is statistically insignificant.

We also find some support that the other mechanisms predict care-seeking behavior. Having non-zero response to the value of life question (i.e., non-zero willingness to pay to adopt a health technology that reduces one's annual risk of death by one percent) is associated with a slightly higher likelihood of being fully vaccinated against COVID-19. Not surprisingly, being uninsured, which we use as a proxy for the price of medical care in our theory, exhibits a strong negative association with several health behaviors. It is associated with a 15.6pp reduction in past flu shot ($p < 0.01$), a 9.1pp reduction in past check-up (statistically insignificant), and a 11.5pp reduction (($p < 0.05$)) in past year prescriptions. It is also associated with an 8.9pp reduction ($p < 0.10$) in being fully vaccinated against COVID-19. However, the estimated coefficients for the behaviors planned for the next year are statistically insignificant. Our measure of patience is significantly associated with some but not all health behaviors. A one-unit increase in the discount factor corresponds to a 6.4pp decrease in the probability of having had a check-up in the past year ($p < 0.05$), a 6.2pp decrease in the likelihood of planning a check-up for the next year ($p < 0.05$), and a 5.3pp reduction in the likelihood of being fully vaccinated against COVID-19. Other than these, the coefficients related to this variable did not achieve statistical significance. Lastly, a one-unit increase in β, which implies less present orientation, is associated with an 11.6pp increase in the probability of intending to get a flu shot in the next year ($p < 0.1$). Nevertheless, the remaining coefficients for this variable are statistically insignificant, indicating no significant association with the other measured behaviors.

In Table 7, we report estimates from versions of our reduced-form regression (Equation 4) without (first panel) and with controls for health insurance, value of life and time preferences (second panel), and with additional controls for our measures of beliefs and disutility (third panel). Our objective is to test the robustness of the estimated coefficients on trust. By systematically adding these controls, we aim to discern whether the observed relationship between trust and care-seeking behavior persists under various specifications. This approach allows us to assess the stability of the trust coefficients and understand the potential mediating effects of these additional variables on the trust-behavior link.

The results from Table 7 show that when additional controls for beliefs and disutility are included in

the regression (as seen in the third panel), the estimated coefficients on the trust indicators are significantly attenuated. This result is consistent with the prediction of our model, which posits that trust influences care-seeking behavior through these mechanisms. The significant reduction in the magnitude of the trust coefficients suggests that a considerable portion of the impact of trust on care-seeking behavior can be attributed to individual beliefs about the system's effectiveness and the perceived disutility of doctor's visits. However, the effects of trust are not similarly attenuated in the regression that omits beliefs and disutility but does include controls for health insurance, value of life, and time preferences (panel two). In panel two, the magnitude and statistical significance of the trust coefficients remain largely unchanged compared to the baseline model without these controls (first panel). This indicates that while health insurance, value of life, and time preferences are important factors in their own right, they do not appear to mediate the relationship between trust and care-seeking behavior in the same way that beliefs and disutility do. In summary, the results from Table 6 and Table 7 support the notion that beliefs and disutility are important pathways through which trust affects care-seeking behavior.

3.6 Heterogeneity by race, age, and political orientation

Based on literature cited above, we also study how the α coefficients in Equation 4 vary by three characteristics: race, age, and political affiliation. In Table 8, we report interaction effects from separate regressions (but conditional on X_i) for Blacks, defined as non-Hispanic Black Americans, and for females, relative to males and those responding other. The Table shows no significant differences in any of the care-seeking behaviors for Black respondents relative to all other respondents, either in the correlations with trust or among the lowest trust group. We find similarly null effects in differences in the trust/behavior relationship for females relative to males and other genders. The exception is that, within the lowest trust quartile, females are significantly more likely (13.5pp) to have received a flu shot and filled a prescription (19pp). However, within this group, females are also more likely (10pp) to be unvaccinated against COVID-19.

Table 9 allows the correlations to vary by a dummy variable for being over the age of 65. Here, we find important differences in COVID-19 vaccination behavior by trust and age. For example, the lowest trust quartile elderly (65+) are *more* likely to be unvaccinated by 23.1pp relative to low-trust nonelderly. For all respondents, the likelihood of being unvaccinated decreases in trust, but it does so more rapidly for the elderly. In Table 9, we find nearly identical patterns for registered Republicans relative to Democrats and those registered as Independents or unaffiliated.

3.7 Sector-Specific Trust and Care-Seeking Behaviors

Next, we return to the question of how trust in different sectors of the health care economy relates to care-seeking behaviors. In Appendix Tables 7 and 8, we present estimates of the α coefficients in Equation 4 from separate regressions in which we replace the overall trust quartile dummy variables with quartile dummy variables of trust in specific sectors of the health care economy (e.g., doctors). The distributions of trust, presented in Figures 4 and 5, show substantial variation in subjective trust within the health care system, and our goal here is to explore how that variation relates to care-seeking behavior.

In Appendix Table 7, trust in doctors, nurses, and hospitals are all significantly related to all three types of behaviors, with the exception of retrospective prescriptions. Generally, the magnitudes of these effects are similar. The notable exception in Appendix Table 7 is trust in health insurance companies, which does not relate significantly to any of our measured behaviors. That is, those expressing trust in health insurance companies are a.) not those expressing trust in other institutions and b.) are not more likely to seek care. If trust in health insurance companies reflects a belief in payment reimbursement, then these results suggest that the prospect of significant financial expenditures is not what drives care-seeking. In contrast, trust in Medicare, shown in Appendix Table 8 does significantly predict care-seeking. Heterogeneity by trust in Medicare may simply reflect the age effects documented in Table 9, or it may reflect different perceptions in Medicare relative to private insurance companies.

Also notable in Appendix Table 8, we find dramatically larger effects with respect to the flu shot and COVID-19 vaccination status for trust in the CDC.

4 Conclusion

In this study, we examine the relationship between trust and care-seeking behaviors in the context of health care. We model care-seeking decisions based on factors that might be influenced by trust. Specifically, we model the marginal benefit and marginal cost of care and their potential variations across individuals based on their trust in the health care system, highlighting the role of beliefs about the system's ability to positively affect one's health and the disutility of interacting with the system (i.e., disutility from seeing a doctor). Informed by our theoretical framework, we design a novel survey instrument to measure trust, its determinants, and some of the health-seeking behaviors (both retrospective and anticipated) it might impact.

We report several novel findings. First, there is a strong association between higher levels of trust and increased likelihood of care-seeking, both retrospective and anticipated. This relationship holds across a variety of care scenarios, from routine check-ups to vaccinations. Second, the association between trust and health care utilization is similar in magnitude to that of income and education, which have received considerable attention in the literature. Third, our analyses indicate that trust operates through the key mechanisms from our theoretical framework, namely individuals' beliefs about the system possessing the capabilities of improving one's health and the personal disutility associated with medical visits. Also, while the association between trust and health care utilization is similar in magnitude to that of income and education, which have received considerable attention in the literature, we found that including other drivers of care-seeking behavior such as 'value of life', health insurance status, and time preferences are important in their own right but do not appear to mediate the relationship between trust and care-seeking behavior. Fourth, our investigation into sector-specific trust underscores the primary importance of providers: doctors, nurses, and hospitals, and also highlights a strong association between trust in the CDC and receiving a flu shot. Finally, we also document that the relationship between trust and care-seeking behavior is similar for both Black and White respondents; however, we do find significant differences when it comes to age and political affiliation. Importantly, all of these results are from regressions that include controls for factors such as income, education, and health insurance status, which allows us to interpret the findings as indicating that low trust reduces people's willingness to seek

care rather than limited access to or information about the importance of care.

Similar to other papers on the economics of trust, our study could not rely on experimental methods to establish causality. As noted by Durlauf (2002), this is a common limitation in the empirical literature on social capital due to the difficulty of finding plausibly exogenous shifters of trust outside of laboratory experiments. However, we have several elements that suggest our findings are robust associations unlikely to be due to reverse causality or unobserved heterogeneity. First, we used a theoretical model to derive predictions and constructed a survey to measure empirical counterparts to the relevant theoretical constructs, and our empirical tests show that reduced-form correlations in the data confirm the model's predictions. Second, our results are robust to a rich set of controls proxying for possible confounding factors. Third, under the assumption of proportional observed and unobserved selection, we report evidence that selection of unobserved variables would need to be much larger than selection on our rich set of controls for observed heterogeneity for our results to be nullified (Oster, 2019).

Our findings underscore the significance of trust as not merely an emotional response but a core determinant shaping individuals' interactions with the health care system. Trust, as reflected in our findings, likely acts as both a mediator and a determinant of perceptions, beliefs, and, ultimately, actions. This complex role of trust manifests concerning patterns, as evidenced by the finding that low trust leads to low use of health care. This situation is alarming not only because diminished care-seeking results in deteriorating current health but also because correcting misplaced mistrust, wherein patients do not trust the system even when it would be warranted, necessitates engagement with the health care system (Gambetta, 2000). However, if this engagement fails to occur, a vicious cycle of persistently low trust ensues, further exacerbating the issue and potentially leading to chronic patterns of inadequate health care utilization. Fourth, the estimated coefficient on trust in anticipated health behaviors regressions remains significant even after controlling for past health care utilization (in addition to the other rich set of controls), which suggests that reverse causality is unlikely to drive the results.

One implication for economists is that understanding how trust is produced and sustained in health care and how it can be restored when low is critically important. Our study suggests that trust likely operates through beliefs about the system's capability to be beneficial and the disutility of interacting with it. Future studies could explore these mechanisms more in detail, delving deeper into the sources of trust disparities across different demographic groups. Future work could also study how trust dynamics might shift in response to policy changes or global health crises. In this respect, longitudinal studies measuring trust and health care-seeking behaviors can offer insights into the long-term effects of trust on health outcomes and system-wide efficiencies, thus contributing to a more robust understanding of the complex interplay between trust and health care utilization over time.

Our findings also have implications for policy. The effectiveness of health policy hinges on individuals seeking care when needed. However, our results suggest that low trust is a significant barrier to seeking care. Thus, addressing trust deficits can be instrumental in encouraging appropriate care-seeking behaviors and ultimately enhancing public health.

References

Alesina, Alberto, & La Ferrara, Eliana. 2002. Who trusts others? Journal of Public Economics, **85**(2), 207–234.

Alsan, Marcella, & Wanamaker, Marianne. 2018. Tuskegee and the health of black men. The quarterly journal of economics, **133**(1), 407–455.

Arellano, Manuel, & Bond, Stephen. 1991. Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. The Review of Economic Studies, **58**(2), 277–297.

Arellano, Manuel, & Bonhomme, Stéphane. 2017. Nonlinear Panel Data Methods for Dynamic Heterogeneous Agent Models. Annual Review of Economics, **9**(Volume 9, 2017), 471–496.

Arrow, Kenneth J. 1963. Uncertainty and the Welfare Economics of Medical Care. The American Economics Review, **53**(5).

Arrow, Kenneth J. 1972. Gifts and exchanges. Philosophy & Public Affairs, 343–362.

Bailey, Zinzi D, Krieger, Nancy, Agénor, Madina, Graves, Jasmine, Linos, Natalia, & Bassett, Mary T. 2017. Structural racism and health inequities in the USA: evidence and interventions. The lancet, **389**(10077), 1453–1463.

Bailey, Zinzi D, Feldman, Justin M, & Bassett, Mary T. 2021. How structural racism works—racist policies as a root cause of US racial health inequities.

Baker, David W. 2020. Trust in health care in the time of COVID-19. JAMA, **324**(23), 2373–2375.

Balsa, Ana I, & McGuire, Thomas G. 2001. Statistical discrimination in health care. Journal of health economics, **20**(6), 881–907.

Bellemare, Marc F., Masaki, Takaaki, & Pepinsky, Thomas B. 2017. Lagged Explanatory Variables and the Estimation of Causal Effect. The Journal of Politics, **79**(3), 949–963.

Berg, Joyce, Dickhaut, John, & McCabe, Kevin. 1995. Trust, reciprocity, and social history. Games and economic behavior, **10**(1), 122–142.

Blendon, Robert J, Benson, John M, & Hero, Joachim O. 2014. Public trust in physicians—US medicine in international perspective. N Engl J Med, **371**(17), 1570–1572.

Bohnet, Iris. 2010. Trust in experiments. Pages 253–257 of: Behavioural and experimental economics. Springer.

Butler, Jeffrey V, Giuliano, Paola, & Guiso, Luigi. 2016. The right amount of trust. Journal of the European Economic Association, **14**(5), 1155–1180.

Camerer, Colin, & Weigelt, Keith. 1988. Experimental tests of a sequential equilibrium reputation model. Econometrica: Journal of the Econometric Society, 1–36.

Camerer, Colin F. 2011. Behavioral game theory: Experiments in strategic interaction. Princeton university press.

Chetty, Raj, Stepner, Michael, Abraham, Sarah, Lin, Shelby, Scuderi, Benjamin, Turner, Nicholas, Bergeron, Augustin, & Cutler, David. 2016. The association between income and life expectancy in the United States, 2001-2014. JAMA, **315**(16), 1750–1766.

Cope, Elizabeth L., Khan, Marya, & Millender, Sarah. 2022. Trust In Health Care: Insights From Ongoing Research. Health Affairs Forefront, January.

Courtemanche, Charles, Pinkston, Joshua, & Stewart, Jay. 2015. Adjusting Body Mass for Measurement Error with Invalid Validation Data. Economics & Human Biology, **19**(December), 275–293.

Deaton, Angus. 2002. Policy implications of the gradient of health and wealth. Health affairs, **21**(2), 13–30.

Durlauf, Steven N. 2002. On the Empirics of Social Capital. The Economic Journal, **112**(483), F459–F479.

Ferrario, Beatrice, & Stantcheva, Stefanie. 2022. Eliciting people's first-order concerns: Text analysis of open-ended survey questions. Pages 163–169 of: AEA Papers and Proceedings, vol. 112. American Economic Association 2014 Broadway, Suite 305, Nashville, TN 37203.

Fukuyama, Francis. 1996. Trust: The social virtues and the creation of prosperity. Simon and Schuster.

Gambetta, Diego. 2000. Can we trust trust. Trust: Making and breaking cooperative relations, **13**(2000), 213–237.

Glaeser, Edward L, Laibson, David, & Sacerdote, Bruce. 2002. An economic approach to social capital. The Economic Journal, **112**(483), F437–F458.

Grossman, Michael. 1972. On the Concept of Health Capital and the Demand for Health. Journal of Political Economy, **80**(2), 223–255.

Guiso, Luigi, Sapienza, Paola, & Zingales, Luigi. 2008. Trusting the stock market. the Journal of Finance, **63**(6), 2557–2600.

Guiso, Luigi, Sapienza, Paola, & Zingales, Luigi. 2009. Cultural biases in economic exchange? The Quarterly Journal of Economics, **124**(3), 1095–1131.

Guiso, Luigi, Sapienza, Paola, & Zingales, Luigi. 2013. The determinants of attitudes toward strategic default on mortgages. The Journal of Finance, **68**(4), 1473–1515.

Haaland, Ingar K, Roth, Christopher, Stantcheva, Stefanie, & Wohlfart, Johannes. 2024 (May). Measuring What is Top of Mind. Working Paper 32421. National Bureau of Economic Research.

Halbert, Chanita Hughes, Armstrong, Katrina, Gandy, Oscar H, & Shaker, Lee. 2006. Racial differences in trust in health care providers. Archives of internal medicine, **166**(8), 896–901.

Halliday, Timothy J., He, Hui, Ning, Lei, & Zhang, Hao. 2019. HEALTH INVESTMENT OVER THE LIFE-CYCLE. Macroeconomic Dynamics, **23**(1), 178–215.

Heeringa, Steven G., West, Brady T., & Berglund, Patricia A. 2010. Applied Survey Data Analysis. Vol. 2. Routledge.

Khullar, Dhruv. 2019. Building trust in health care—why, where, and how. Jama, **322**(6), 507–509.

Knack, Stephen, & Keefer, Philip. 1997. Does social capital have an economic payoff? A cross-country investigation. The Quarterly Journal of Economics, **112**(4), 1251–1288.

LaVeist, Thomas A. 2011. Minority populations and health: An introduction to health disparities in the United States. John Wiley & Sons.

LaVeist, Thomas A, Gaskin, Darrell, & Richard, Patrick. 2011. Estimating the economic burden of racial health inequalities in the United States. International Journal of Health Services, **41**(2), 231–238.

Lleras-Muney, Adriana. 2022. Education and income gradients in longevity: The role of policy. Canadian Journal of Economics/Revue canadienne d'économique, **55**(1), 5–37.

Marmot, Michael. 2005. Social determinants of health inequalities. The Lancet, **365**(9464), 1099–1104.

Mechanic, David, & Schlesinger, Mark. 1996. The impact of managed care on patients' trust in medical care and their physicians. Jama, **275**(21), 1693–1697.

Murray, Billie, & McCrone, Susan. 2015. An integrative review of promoting trust in the patient–primary care provider relationship. Journal of Advanced Nursing, **71**(1), 3–23.

Nazroo, James Y. 2003. The structuring of ethnic inequalities in health: economic position, racial discrimination, and racism. American journal of public health, **93**(2), 277–284.

Oster, Emily. 2019. Unobservable selection and coefficient stability: Theory and evidence. Journal of Business & Economic Statistics, **37**(2), 187–204.

Putnam, Robert, & Helliwell, John. 1995. Economic growth and social capital in Italy. Eastern Economic Journal, **21**(3), 295–307.

Sapienza, Paola, & Zingales, Luigi. 2012. A trust crisis. International Review of Finance, **12**(2), 123–131.

Sapienza, Paola, Toldra-Simats, Anna, & Zingales, Luigi. 2013. Understanding Trust. The Economic Journal, **123**(573), 1313–1332.

Sobel, Joel. 2002. Can we trust social capital? Journal of Economic Literature, **40**(1), 139–154.

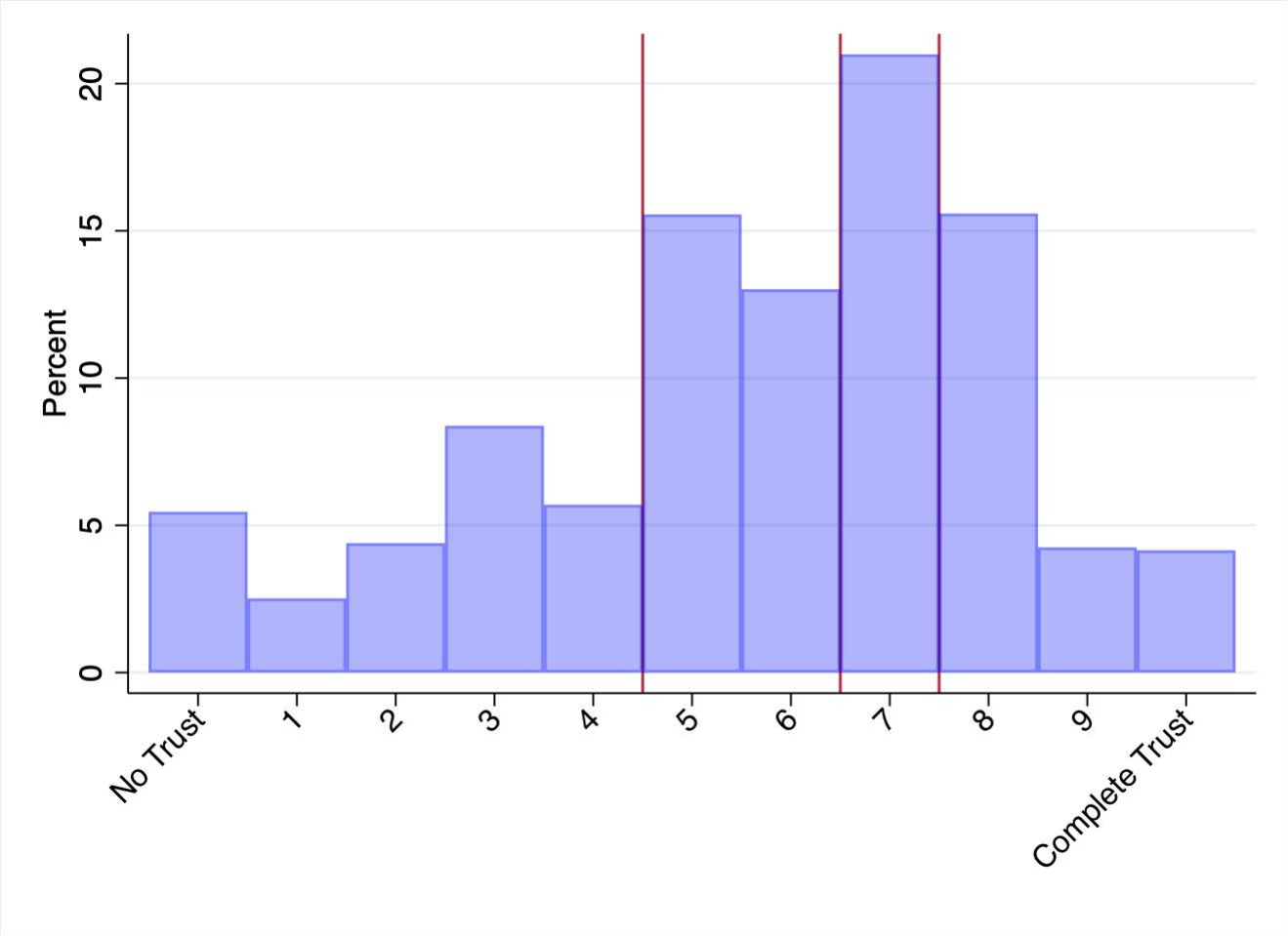
Stantcheva, Stefanie. 2023. How to Run Surveys: A Guide to Creating Your Own Identifying Variation and Revealing the Invisible. Annual Review of Economics, **15**(1), 205–234.

Washington, Harriet A. 2006. Medical apartheid: The dark history of medical experimentation on Black Americans from colonial times to the present. Doubleday Books.

Zak, Paul J, & Knack, Stephen. 2001. Trust and growth. The Economic Journal, **111**(470), 295–321.

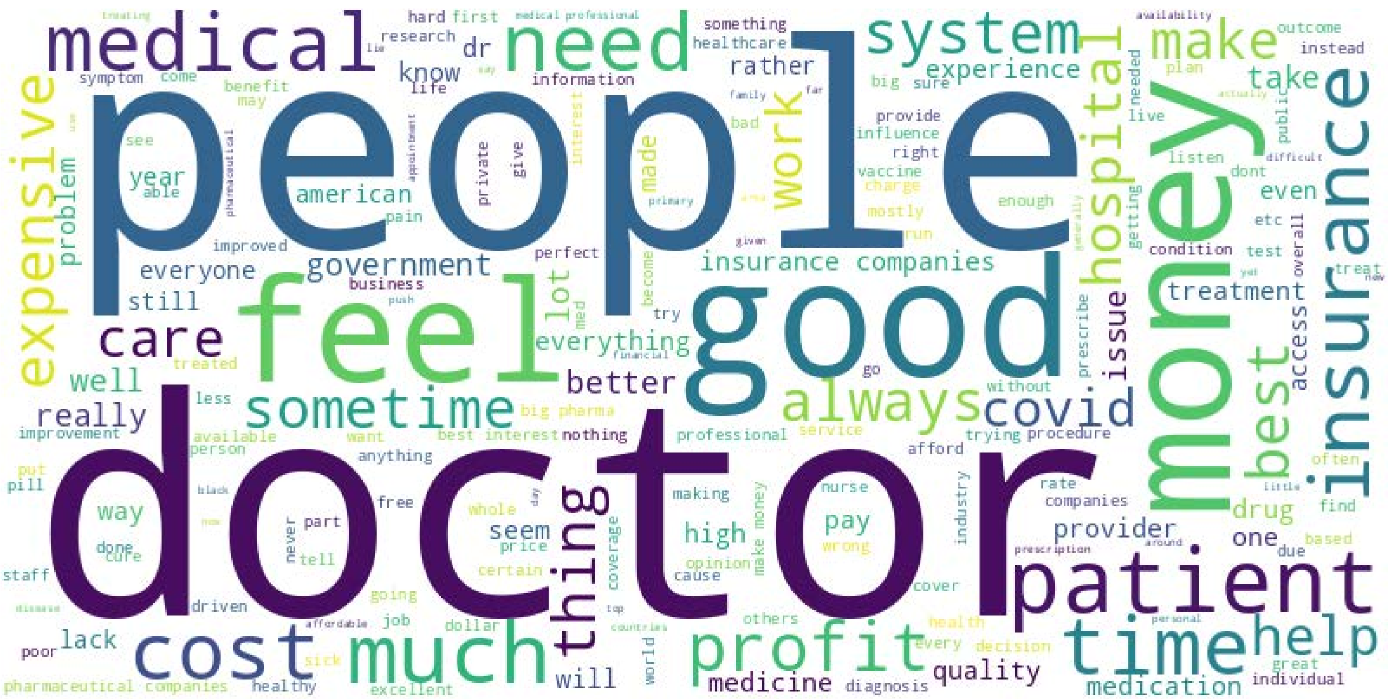
5 Figures

Figure 1: Overall Health Care System Trust



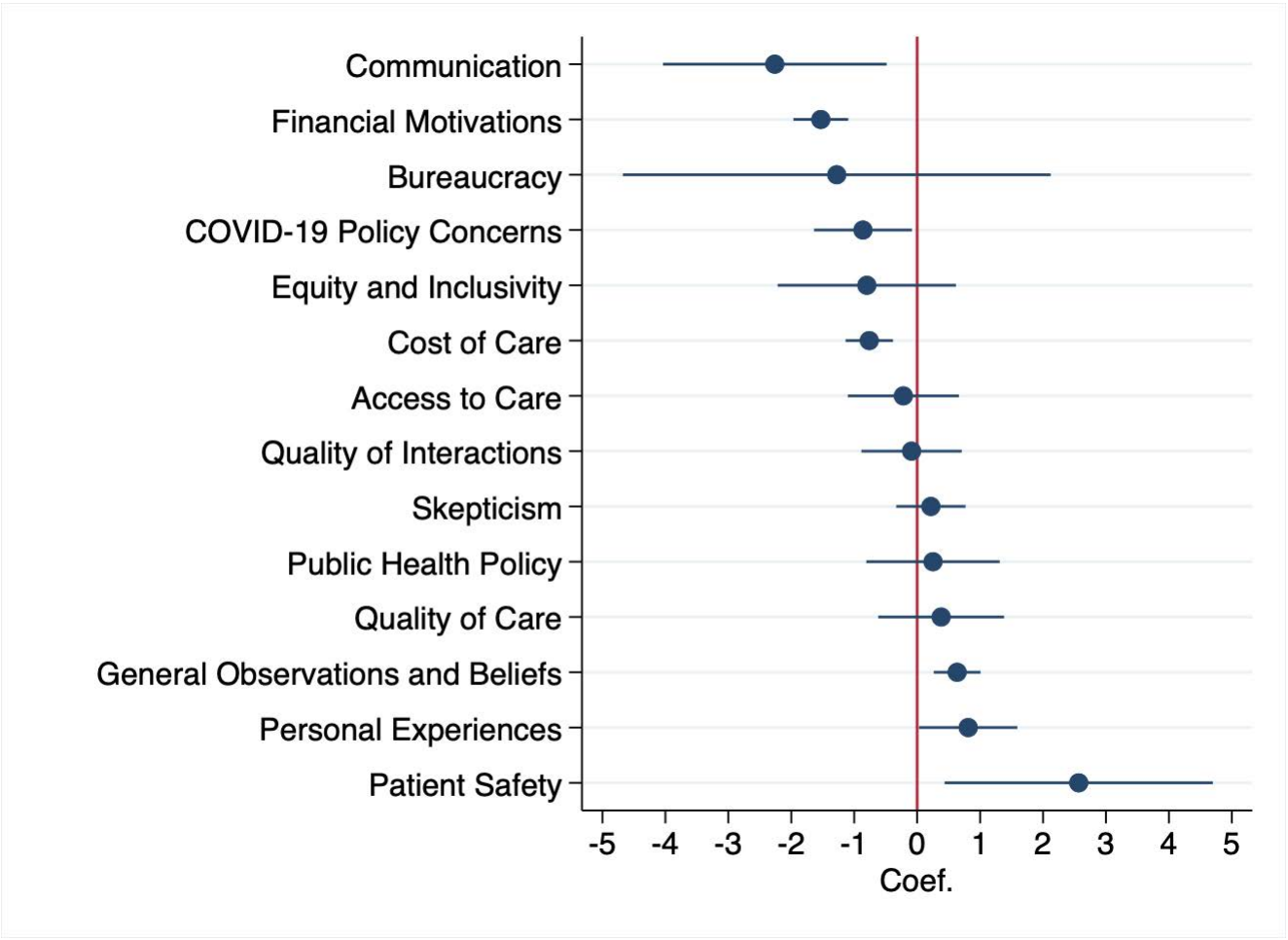
Notes: The distribution of trust in the overall health care system on a scale from 0 (no trust) to 10 (complete trust). Red vertical lines indicate quartile boundaries. Data are weighted by the frequency of observation, as calculated by the integer value of the probability weight Heeringa et al. (2010). $n = 1,115$

Figure 2: Trust Word Cloud



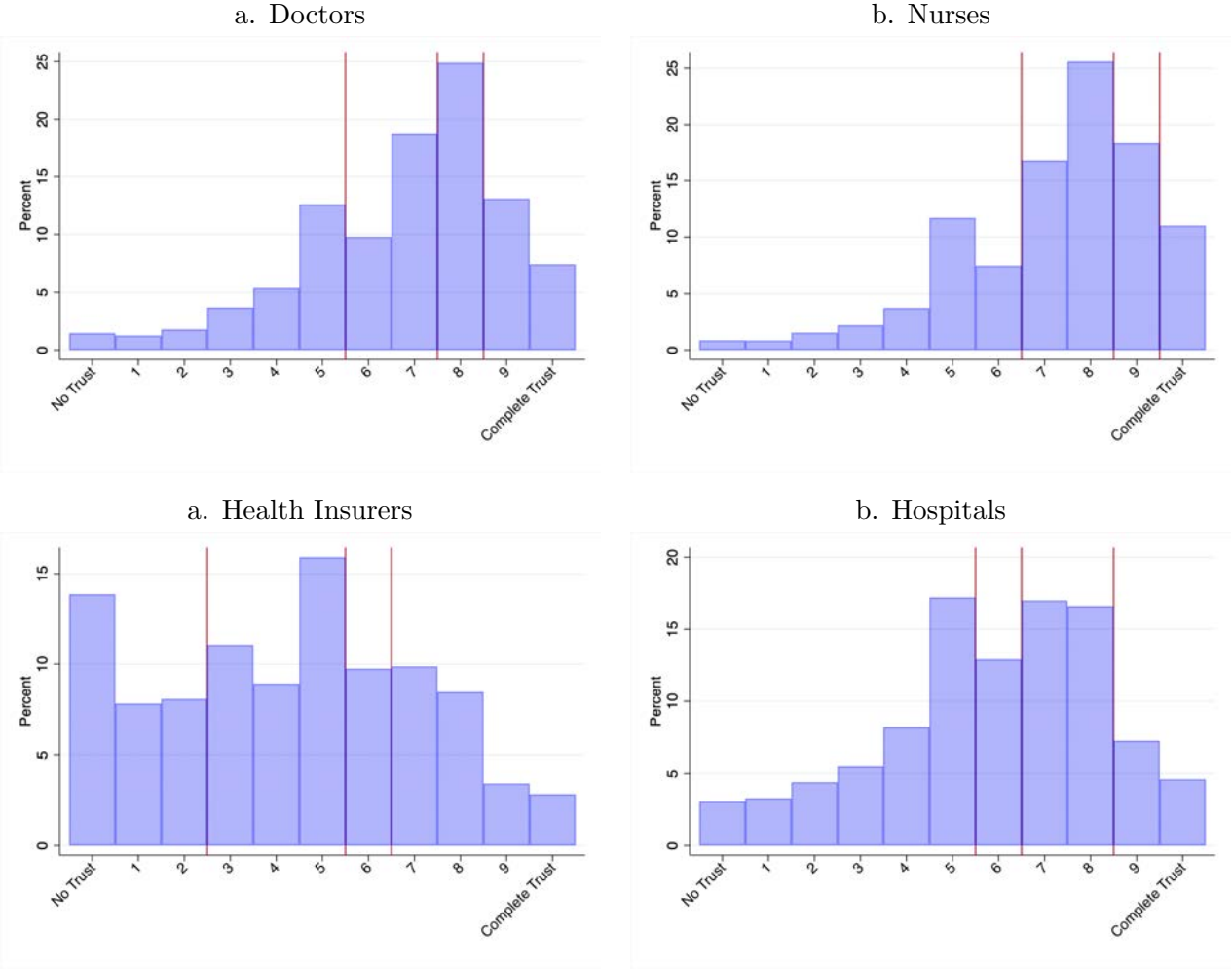
Notes: Following the overall trust question in Figure 1, we asked respondents for a brief explanation of their answer. Figure 2 presents a word cloud of these results. $n = 1,115$

Figure 3: Drivers of Overall Trust: Evidence from Comments



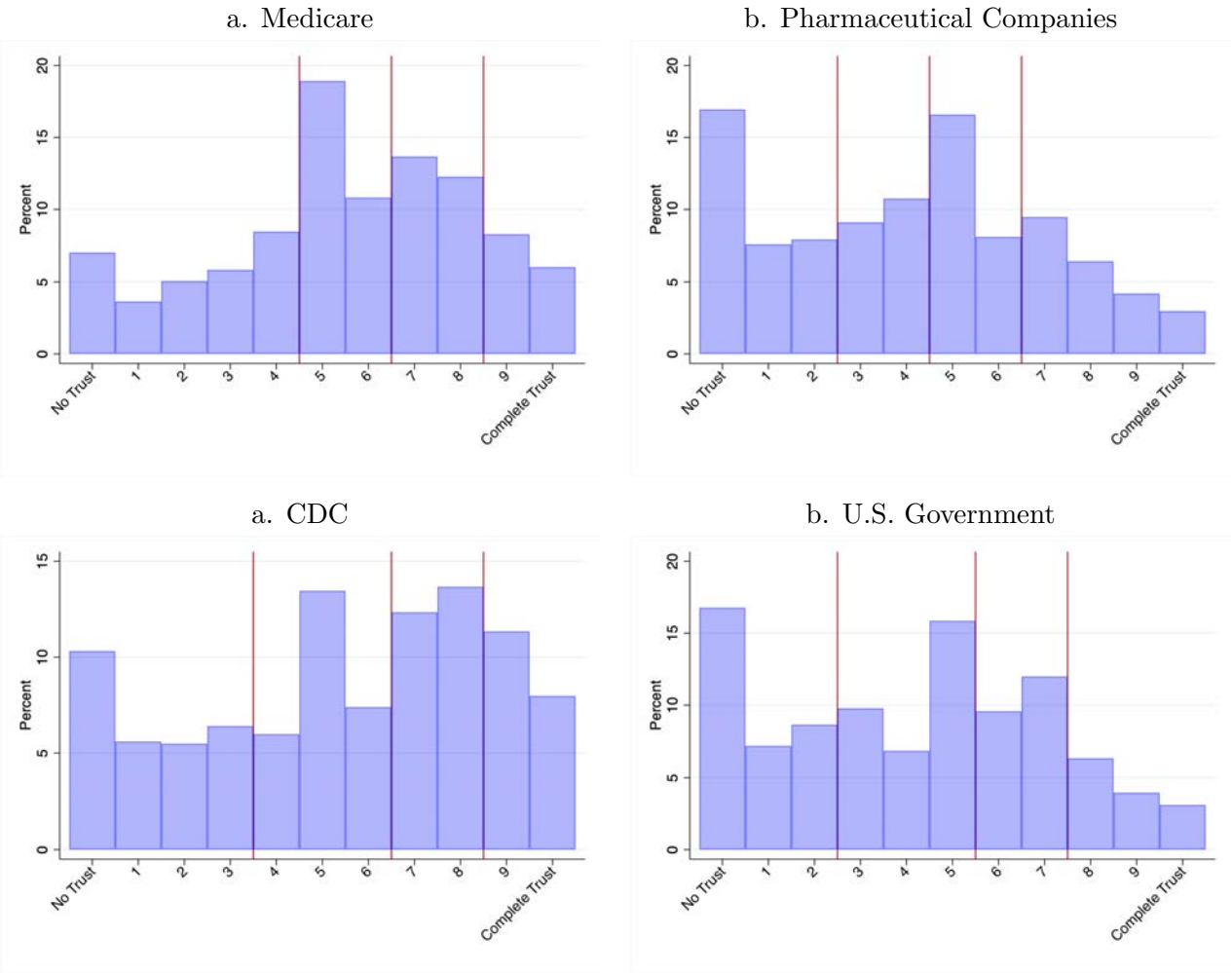
Notes: Using ChatGPT to process the comments on overall trust, we categorized these comments into domains. Figure 3 presents multiple regression results of the overall trust question (scaled from 0-10) on dummies for comments within each domain. $n = 1,115$

Figure 4: Sector Specific Trust



Notes: The distribution of trust on a scale from 0 (no trust) to 10 (complete trust). Red vertical lines indicate quartile boundaries. Data are weighted by the frequency of observation, as calculated by the integer value of the probability weight Heeringa et al. (2010). $n = 1,115$

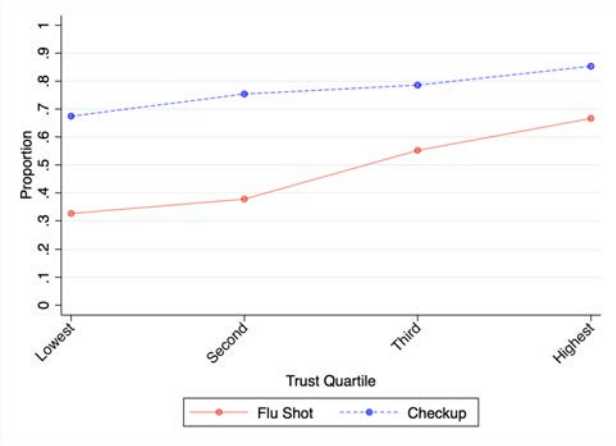
Figure 5: Sector Specific Trust



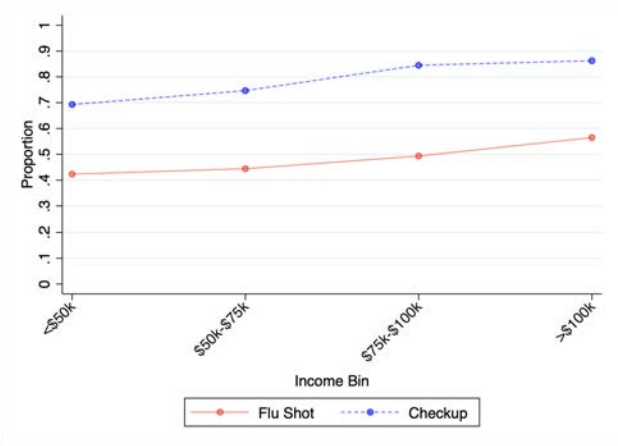
Notes: The distribution of trust on a scale from 0 (no trust) to 10 (complete trust). Red vertical lines indicate quartile boundaries. Data are weighted by the frequency of observation, as calculated by the integer value of the probability weight Heeringa et al. (2010). $n = 1,115$

Figure 6: Behavior by Trust Quartile

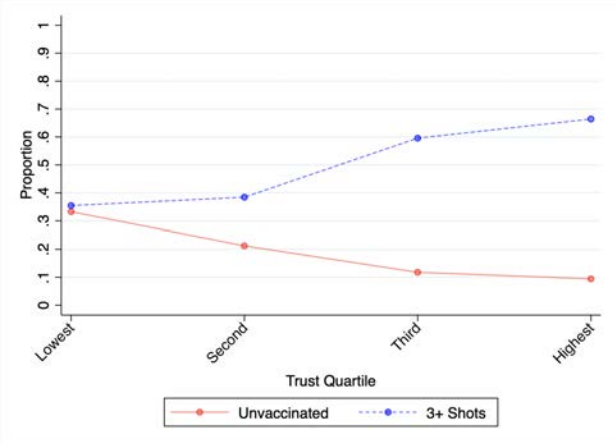
a. Anticipated Behavior by Trust



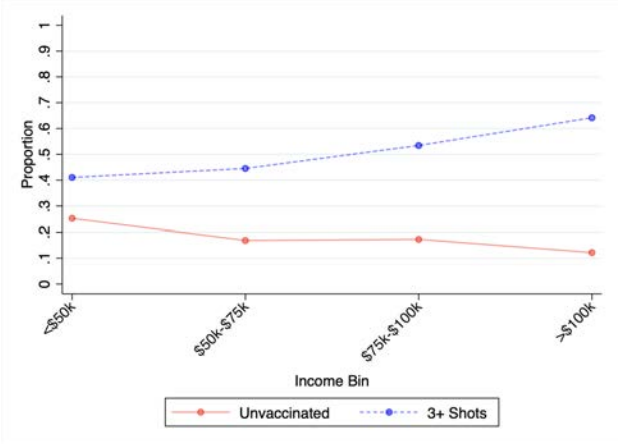
b. Anticipated Behavior by Income



c. COVID Vaccine by Trust



d. COVID Vaccine by Income



Notes: Proportions of different prospective behaviors and COVID-19 vaccine states by the likert measure of trust of the overall health care system trust question (a. and c.) and observed income personal income bins (b. and d.). Figures a. and c. include quadratic fit lines through scatter plots. Data are weighted using survey weights to reflect the United States population over the age of 18. $n = 1,115$

6 Tables

Table 1: Demographic and Health Characteristics by Trust

	Quartiles of Overall Trust					
	Mean	Lowest	Second	Third	Highest	p-value
Age	47.629	43.318	45.424	49.466	53.399	0.000
Gender						
Male	0.477	0.416	0.476	0.535	0.495	0.101
Female	0.517	0.567	0.518	0.465	0.505	0.218
Other	0.006	0.017	0.006	0.000	0.000	0.031
Race/Ethnicity						
White	0.599	0.637	0.581	0.630	0.550	0.188
Black	0.135	0.100	0.146	0.145	0.153	0.212
Hispanic	0.182	0.168	0.193	0.128	0.231	0.038
Asian	0.062	0.066	0.055	0.076	0.056	0.813
Other	0.022	0.028	0.026	0.021	0.011	0.576
Martial Status						
Married	0.489	0.456	0.471	0.526	0.516	0.393
Single	0.242	0.286	0.267	0.204	0.197	0.066
Divorced	0.101	0.055	0.106	0.092	0.153	0.004
Separated	0.026	0.037	0.019	0.030	0.018	0.574
Widowed	0.027	0.020	0.018	0.021	0.052	0.298
Subjective Health						
Excellent	0.092	0.089	0.054	0.084	0.147	0.005
Very Good	0.332	0.261	0.320	0.396	0.367	0.015
Good	0.376	0.398	0.389	0.354	0.356	0.703
Fair	0.164	0.211	0.188	0.132	0.113	0.016
Poor	0.036	0.042	0.049	0.035	0.017	0.131
Objective Health						
Cancer	0.055	0.040	0.044	0.055	0.084	0.211
Diabetes	0.211	0.190	0.204	0.210	0.244	0.587
Heart Attack	0.083	0.053	0.086	0.094	0.103	0.148
Stroke	0.023	0.018	0.014	0.044	0.020	0.459
Anx./Depression	0.270	0.329	0.278	0.247	0.217	0.047
Unable to Work	0.061	0.075	0.069	0.048	0.049	0.562

Notes: Table 1 presents the overall means and means within quartiles of the overall trust question for selected individual characteristics. Trust quartiles correspond to the overall trust question presented in Figure 1 with cutoffs of [0,4], [5,6], [7], and [8,10], respectively. All statistics are weighted to reflect the United States population over the age of 18. The p-value reported in the last column is on the unadjusted Wald test that there is no statistical difference between means of each characteristic in the lowest quartile and other quartiles of the overall trust question distribution. $n = 1,115$

Table 2: Socioeconomic Status Characteristics by Trust

	Quartiles of Overall Trust					
	Mean	Lowest	Second	Third	Highest	p-value
Highest Education						
Less than High School	0.089	0.101	0.101	0.083	0.068	0.612
High School Graduate	0.302	0.310	0.271	0.268	0.361	0.134
Some College	0.265	0.295	0.302	0.227	0.223	0.080
College Graduate	0.171	0.144	0.175	0.209	0.163	0.373
Graduate Degree	0.172	0.150	0.151	0.213	0.185	0.225
College Graduate +	0.343	0.294	0.326	0.422	0.348	0.047
Personal Annual Income						
$< \$50,000$	0.451	0.470	0.443	0.394	0.488	0.257
$\in [\$50k, \$75k)$	0.175	0.187	0.145	0.200	0.174	0.416
$\in [\$75k, \$100k)$	0.141	0.142	0.163	0.107	0.142	0.316
$> \$100,000$	0.234	0.202	0.249	0.298	0.196	0.045
Employment						
Employed Full-Time	0.458	0.469	0.483	0.506	0.374	0.022
Employed Part-Time	0.138	0.152	0.148	0.143	0.105	0.332
Retired	0.206	0.136	0.164	0.193	0.344	0.000
Homemaker	0.064	0.075	0.070	0.051	0.054	0.680
Student	0.015	0.013	0.020	0.014	0.012	0.931
Unemployed	0.059	0.081	0.046	0.043	0.063	0.392
Residence						
Center City	0.347	0.340	0.338	0.336	0.377	0.769
Center City County	0.363	0.312	0.367	0.433	0.353	0.084
Suburban	0.157	0.173	0.136	0.139	0.177	0.473
Non-Metro	0.133	0.175	0.159	0.092	0.093	0.019
Political Affiliation						
Republican	0.290	0.304	0.301	0.297	0.256	0.609
Democrat	0.326	0.206	0.275	0.395	0.459	0.000
Independent	0.280	0.353	0.298	0.222	0.229	0.006
Other	0.104	0.137	0.126	0.086	0.057	0.018

Notes: Table 2 presents the overall means and means within quartiles of the overall trust question for selected individual characteristics. Trust quartiles correspond to the overall trust question presented in Figure 1 with cutoffs of [0,4], [5,6], [7], and [8,10], respectively. All statistics are weighted to reflect the United States population over the age of 18. The p-value reported in the last column is on the unadjusted Wald test that there is no statistical difference between means of each characteristic in the lowest quartile and other quartiles of the overall trust question distribution. $n = 1,115$

Table 3: Behaviors, Mechanisms, and Sectors by Trust

	Quartiles of Overall Trust					
	Mean	Lowest	Second	Third	Highest	p-value
Past Year Behavior						
Flu shot	0.480	0.355	0.387	0.534	0.684	0.000
Check-up	0.723	0.648	0.719	0.751	0.787	0.011
Prescription	0.751	0.712	0.740	0.811	0.755	0.117
Anticipated Behavior						
Flu Shot	0.470	0.326	0.378	0.552	0.667	0.000
Check-up	0.763	0.674	0.754	0.786	0.853	0.000
COVID Vaccine Status						
Not Vaccinated	0.196	0.333	0.212	0.118	0.094	0.000
Fully Vaccinated	0.488	0.355	0.384	0.596	0.664	0.000
Behavioral Mechanisms						
Resources and Expertise	6.415	4.258	6.064	7.514	8.249	0.000
Unpleasant or Very Unpleasant	0.185	0.378	0.169	0.109	0.058	0.000
Uninsured	0.087	0.131	0.091	0.061	0.056	0.039
Non-zero WTP	0.608	0.497	0.597	0.671	0.687	0.000
Logged WTP | WTP>0	4.979	4.827	4.809	5.018	5.243	0.161
Discount Factor	0.746	0.683	0.750	0.746	0.810	0.008
Present Bias	0.697	0.639	0.693	0.742	0.727	0.000
Area Level Char.						
Adj. Medicare Mortality	4.019	4.100	4.005	3.969	3.992	0.033
Adj. Medicare Reimbursements	11.306	11.301	11.252	11.359	11.331	0.841
Medicare Enrollees	1.676	1.534	1.741	1.801	1.646	0.113
Sector-Specific Trust						
Doctors	6.811	4.676	6.612	7.758	8.574	0.000
Nurses	7.260	5.659	7.071	8.030	8.575	0.000
Health Insurance Companies	4.269	1.785	4.002	5.284	6.437	0.000
Hospitals	5.878	3.606	5.531	6.888	7.913	0.000
Medicare/Medicaid	5.533	3.322	5.237	6.511	7.469	0.000
Pharma Companies	4.101	1.573	3.774	5.004	6.489	0.000
CDC	5.491	3.275	4.744	6.584	7.867	0.000
US Government	4.190	1.872	3.599	5.237	6.532	0.000

Notes: Table 3 presents the overall means and means within quartiles of the overall trust question for selected individual characteristics. Trust quartiles correspond to the overall trust question presented in Figure 1 with cutoffs of [0,4], [5,6], [7], and [8,10], respectively. Area level characteristics are from the 2019 Dartmouth Atlas file and merged to survey data at the zip code level. All statistics are weighted to reflect the United States population over the age of 18. The p-value reported in the last column is on the unadjusted Wald test that there is no statistical difference between means of each characteristic in the lowest quartile and other quartiles of the overall trust question distribution. $n = 1,115$

Table 4: Regression Results: Behavior and Trust

	Past Year			Next Year		COVID-19 Vaccine	
	Flu shot	Check-up	Prescription	Flu Shot	Check-up	Not Vac.	Fully Vac.
Mean	0.480	0.723	0.751	0.470	0.763	0.196	0.488
Trust Quartile							
Trust $\in [5,6]$	0.010	0.047	0.025	0.032	0.066*	-0.099***	-0.005
	(0.039)	(0.038)	(0.036)	(0.039)	(0.039)	(0.038)	(0.039)
Trust $\in [7]$	0.104**	0.056	0.075**	0.156***	0.063	-0.151***	0.129***
	(0.047)	(0.042)	(0.037)	(0.046)	(0.041)	(0.037)	(0.045)
Trust $\in [8,10]$	0.247***	0.074*	0.007	0.260***	0.130***	-0.169***	0.177***
	(0.044)	(0.039)	(0.038)	(0.045)	(0.038)	(0.037)	(0.044)
Education							
High School Graduate	0.018	-0.012	0.108*	0.142**	0.069	-0.003	0.003
	(0.062)	(0.063)	(0.057)	(0.057)	(0.065)	(0.062)	(0.062)
Some College	0.067	0.085	0.133**	0.172***	0.100	-0.036	0.075
	(0.061)	(0.063)	(0.058)	(0.057)	(0.066)	(0.063)	(0.063)
College Graduate	0.189***	0.107	0.141**	0.301***	0.140**	-0.099	0.158**
	(0.069)	(0.069)	(0.063)	(0.065)	(0.071)	(0.064)	(0.071)
Graduate Degree	0.216***	0.107	0.138**	0.315***	0.168**	-0.116*	0.218***
	(0.070)	(0.068)	(0.063)	(0.065)	(0.068)	(0.065)	(0.072)
Annual Income							
\$50k-\$75k	-0.004	-0.016	-0.001	-0.019	0.034	-0.058	-0.024
	(0.044)	(0.042)	(0.038)	(0.044)	(0.040)	(0.037)	(0.044)
\$75k-\$100k	0.010	0.074*	0.045	-0.022	0.103**	-0.038	0.037
	(0.047)	(0.043)	(0.041)	(0.048)	(0.041)	(0.039)	(0.046)
$>$ \$100k	0.039	0.104**	0.101**	0.050	0.122***	-0.069*	0.116**
	(0.047)	(0.044)	(0.041)	(0.046)	(0.043)	(0.040)	(0.047)
δ	2.447	3.413	17.606	2.929	4.616	6.177	2.206

Notes: Regression coefficients of each retrospective or anticipated behavior on the trust quartiles indicated in Figure 1. Each column represents one regression. Past year dependent variables reflect retrospective behavior, and next year dependent variables reflect anticipated future behavior. COVID-19 vaccine status reflects vaccination status at the time of interview. All regressions include controls for characteristics described in Tables 1 and 2. All regressions are population-weighted. The mean reported in the first row is for the full estimation sample. *** p<0.01, ** p<0.05, * p<0.1. $n = 1,115$.

Table 5: Dynamic Regression Results

	Flu Shot	Check-up
Trust Quartile		
Trust $\in [5, 6]$	0.041	0.019
	(0.035)	(0.027)
Trust $\in [7]$	0.022	0.065**
	(0.039)	(0.031)
Trust $\in [8, 10]$	0.076**	0.070**
	(0.034)	(0.034)
Past Behavior		
Flu shot	0.105***	0.665***
	(0.030)	(0.032)
Check-up	0.350***	0.052*
	(0.039)	(0.028)
Prescription	0.109***	0.019
	(0.040)	(0.032)
Not Vaccinated	-0.048	-0.044
	(0.042)	(0.030)
Fully Vaccinated	-0.037	0.086***
	(0.030)	(0.032)

Notes: Regression results of anticipated behavior on trust and past year retrospective behavior. COVID-19 vaccine status reflects vaccination status at the time of interview. All regressions include controls for characteristics described in Tables 1, 2, and area-level characteristics. All regressions are population-weighted. The mean reported in the first row is for the full estimation sample. *** p<0.01, ** p<0.05, * p<0.1. $n = 1,115$.

Table 6: Regression Results: Mechanisms and Behavior

	Past Year			Next Year		COVID-19 Vaccine	
	Flu shot	Check-up	Prescription	Flu Shot	Check-up	Not Vac.	Fully Vac.
Mean	0.480	0.723	0.751	0.470	0.763	0.196	0.488
Beliefs	0.025***	0.016***	0.017***	0.035***	0.029***	-0.017***	0.018***
and Expertise	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Disutility	-0.090**	-0.059	0.044	-0.083**	-0.046	0.008	-0.128***
	(0.041)	(0.042)	(0.038)	(0.040)	(0.042)	(0.038)	(0.039)
Non-zero WTP	0.042	0.008	-0.039	0.025	-0.017	-0.029	0.050*
	(0.031)	(0.028)	(0.026)	(0.031)	(0.028)	(0.027)	(0.030)
Uninsured	-0.156***	-0.091	-0.115**	-0.072	-0.005	0.023	-0.089*
	(0.050)	(0.057)	(0.053)	(0.057)	(0.060)	(0.053)	(0.052)
Discount Factor (δ)	-0.041	-0.064**	-0.028	-0.021	-0.062**	0.012	-0.053*
	(0.031)	(0.029)	(0.029)	(0.029)	(0.031)	(0.034)	(0.029)
Present Bias (β)	0.042	0.024	-0.049	0.116*	-0.064	0.007	0.016
	(0.062)	(0.056)	(0.054)	(0.064)	(0.057)	(0.055)	(0.061)

Notes: Regression coefficients of each behavior in Figure 6 on the economic mechanisms highlighted in Section 2. Past year dependent variables reflect retrospective behavior, and next year dependent variables reflect anticipated future behavior. COVID-19 vaccine status reflects vaccination status at the time of interview. All regressions include controls for characteristics described in Tables 1 and 2. All regressions are population-weighted. The mean reported in the first row is for the full estimation sample. *** p<0.01, ** p<0.05, * p<0.1. $n = 1,115$.

Table 7: Regression Results: Behavior and Trust with Controls for Mechanisms

	Past Year			Next Year		COVID-19 Vaccine	
	Flu shot	Check-up	Prescription	Flu Shot	Check-up	Not Vac.	Fully Vac.
Mean	0.480	0.723	0.751	0.470	0.763	0.196	0.488
Panel 1: No Controls for Mechanisms							
Trust Quartile							
Second	0.009	0.045	0.024	0.031	0.067*	-0.099***	-0.005
	(0.040)	(0.038)	(0.036)	(0.039)	(0.039)	(0.038)	(0.038)
Third	0.102**	0.054	0.073*	0.153***	0.065	-0.151***	0.130***
	(0.047)	(0.042)	(0.038)	(0.046)	(0.042)	(0.037)	(0.045)
Fourth	0.248***	0.072*	0.006	0.261***	0.129***	-0.168***	0.178***
	(0.045)	(0.039)	(0.038)	(0.045)	(0.039)	(0.037)	(0.044)
Panel 2: With Controls for Insurance, Value of Life, and Time Preferences							
Trust Quartile							
Second	0.005	0.044	0.024	0.025	0.073*	-0.100***	-0.006
	(0.040)	(0.038)	(0.036)	(0.040)	(0.039)	(0.038)	(0.038)
Third	0.094**	0.051	0.073*	0.142***	0.072*	-0.152***	0.127***
	(0.047)	(0.042)	(0.038)	(0.046)	(0.042)	(0.037)	(0.045)
Fourth	0.240***	0.070*	0.005	0.251***	0.138***	-0.170***	0.177***
	(0.045)	(0.040)	(0.038)	(0.045)	(0.039)	(0.038)	(0.044)
*Panel 3: With **Additional** Controls for Beliefs and Disutility*							
Trust Quartile							
Second	-0.039	0.004	0.005	-0.035	0.018	-0.090**	-0.050
	(0.041)	(0.040)	(0.037)	(0.041)	(0.039)	(0.039)	(0.040)
Third	0.028	-0.012	0.037	0.049	-0.017	-0.133***	0.066
	(0.050)	(0.045)	(0.040)	(0.049)	(0.045)	(0.039)	(0.048)
Fourth	0.159***	-0.008	-0.043	0.135**	0.024	-0.146***	0.102**
	(0.053)	(0.045)	(0.042)	(0.053)	(0.044)	(0.042)	(0.050)

Notes: Regression coefficients of each retrospective or anticipated behavior on the trust quartiles indicated in Figure 1. Each column represents one regression. Past year dependent variables reflect retrospective behavior, and next year dependent variables reflect anticipated future behavior. COVID-19 vaccine status reflects vaccination status at the time of interview. All regressions include controls for characteristics described in Tables 1 and 2. All regressions are population-weighted. The mean reported in the first row is for the full estimation sample. *** p<0.01, ** p<0.05, * p<0.1. $n = 1,115$.

Table 8: Regression Results: Heterogeneity by Race and Sex

	Past Year			Next Year		COVID-19 Vaccine	
	Flu shot	Check-up	Prescription	Flu Shot	Check-up	Not Vac.	Fully Vac.
Race: Black							
Black	-0.070	0.069	-0.115	-0.064	-0.070	0.020	-0.114
	(0.083)	(0.091)	(0.091)	(0.083)	(0.097)	(0.098)	(0.074)
Second × Black	0.012	-0.025	-0.073	-0.117	0.081	0.170	0.026
	(0.108)	(0.115)	(0.110)	(0.104)	(0.118)	(0.121)	(0.103)
Third × Black	-0.053	-0.056	0.112	-0.117	0.000	0.037	0.000
	(0.112)	(0.116)	(0.112)	(0.113)	(0.130)	(0.118)	(0.107)
Highest × Black	-0.049	-0.100	0.064	-0.035	0.018	0.064	-0.120
	(0.114)	(0.115)	(0.114)	(0.114)	(0.119)	(0.116)	(0.112)
Sex: Female							
Female	0.006	0.135**	0.190***	0.034	0.021	0.100*	0.022
	(0.061)	(0.057)	(0.055)	(0.058)	(0.060)	(0.058)	(0.058)
Second × Female	-0.018	0.037	-0.075	-0.042	0.023	-0.040	-0.076
	(0.080)	(0.075)	(0.071)	(0.077)	(0.077)	(0.075)	(0.078)
Third × Female	0.082	-0.048	-0.046	-0.059	0.020	-0.104	0.024
	(0.091)	(0.082)	(0.075)	(0.088)	(0.084)	(0.071)	(0.084)
Highest × Female	0.056	-0.077	-0.035	-0.024	0.075	-0.094	-0.099
	(0.084)	(0.074)	(0.073)	(0.083)	(0.074)	(0.072)	(0.082)

Notes: Regression coefficients of each retrospective or anticipated behavior on the trust quartiles indicated in Figure 1. Each column represents one regression. Black is relative to all other races. Past year dependent variables reflect retrospective behavior, and next year dependent variables reflect anticipated future behavior. COVID-19 vaccine status reflects vaccination status at the time of interview. All regressions include controls for characteristics described in Tables 1 and 2. All regressions are population-weighted. *** p<0.01, ** p<0.05, * p<0.1. $n = 1,115$.

Table 9: Regression Results: Heterogeneity by Age and Political Affiliation

	Past Year			Next Year		COVID-19 Vaccine	
	Flu shot	Check-up	Prescription	Flu Shot	Check-up	Not Vac.	Fully Vac.
Age: ≥ 65							
≥ 65	-0.053	0.067	0.040	-0.021	0.047	0.231**	-0.188*
	(0.111)	(0.077)	(0.058)	(0.116)	(0.092)	(0.096)	(0.111)
Second $\times \geq 65$	0.191	-0.040	-0.089	0.147	-0.118	-0.171	0.164
	(0.126)	(0.081)	(0.071)	(0.131)	(0.093)	(0.108)	(0.123)
Third $\times \geq 65$	0.224*	-0.086	-0.103	0.176	-0.115	-0.211**	0.195
	(0.131)	(0.093)	(0.072)	(0.132)	(0.102)	(0.100)	(0.122)
Highest $\times \geq 65$	0.184	-0.038	0.042	0.167	-0.081	-0.145	0.124
	(0.118)	(0.080)	(0.064)	(0.125)	(0.088)	(0.101)	(0.119)
Political Affiliation: Republican							
Republican	-0.141*	0.070	-0.048	-0.196***	-0.032	0.321***	-0.298***
	(0.072)	(0.065)	(0.059)	(0.071)	(0.066)	(0.067)	(0.067)
Second $\times$ Republican	-0.004	-0.087	0.141*	0.033	0.032	-0.053	-0.029
	(0.087)	(0.081)	(0.074)	(0.085)	(0.081)	(0.086)	(0.082)
Third $\times$ Republican	-0.002	-0.075	-0.086	0.089	-0.010	-0.210***	0.022
	(0.103)	(0.090)	(0.082)	(0.099)	(0.088)	(0.081)	(0.098)
Highest $\times$ Republican	0.069	-0.087	0.044	0.149	-0.035	-0.316***	0.226**
	(0.094)	(0.081)	(0.076)	(0.092)	(0.081)	(0.077)	(0.092)

Notes: Regression coefficients of each retrospective or anticipated behavior on the trust quartiles indicated in Figure 1. Each column represen one regression. Black is relative to all other races. Past year dependent variables reflect retrospective behavior, and next year dependent variab reflect anticipated future behavior. COVID-19 vaccine status reflects vaccination status at the time of interview. All regressions include contr for characteristics described in Tables 1 and 2. All regressions are population-weighted. *** p<0.01, ** p<0.05, * p<0.1. $n = 1,115$.

Trust and Health Care-Seeking Behavior
APPENDIX

Michael E. Darden and Mario Macis*

May 7, 2024

JEL Classification: I11; I12; I14; I18

Keywords: Trust; Health Care; Disparities

*Darden: Johns Hopkins University Carey Business School and NBER. Macis: Johns Hopkins University Carey Business School and NBER. This study was approved by the Johns Hopkins Homewood IRB (HIRB00017075). We pre-registered our survey at the American Economic Association registry (AEARCTR-0011214). We acknowledge funding from the Hopkins Business of Health Initiative (HBHI). We thank Marcella Alsan, Luigi Guiso, Joanne Kenen, Jania Marshall, Daniel Polsky, and Luigi Zingales for helpful comments and references. Special thanks to Theodore (Jack) Iwashyna for his extremely helpful feedback on the survey.

1 Survey Details and Sample Construction

Table 1: Sample Characteristics by Missing Values

	Estimation	Dropped Obs.		
	Sample Mean	Mean	N	p-value
Health Care System Trust	5.717	5.523	109	0.436
Behaviors				
Past Flu shot	0.498	0.442	120	0.243
Past Check-up	0.730	0.700	120	0.483
Past Prescription	0.761	0.692	120	0.096
Anticipated Flu Shot	0.480	0.417	120	0.188
Anticipated Check-up	0.772	0.717	120	0.172
COVID-19: Not Vaccinated	0.185	0.183	120	0.970
COVID-19: Fully Vaccinated	0.502	0.500	120	0.963
Economic Mechanisms				
Beliefs: Resources and Expertise	6.461	6.118	119	0.171
WTP for 1% Mort. Reduction	272.696	275.333	120	0.957
Disutility: Uninsured	0.080	0.083	120	0.893
Unpleasant Care	0.175	0.208	120	0.363
Discount Factor (δ)	0.753	0.776	120	0.592
Present Bias (β)	0.693	0.689	120	0.877

Notes: Individuals are dropped if they have missing values of age, sex, education, race, marital status, political views, income, geography, health insurance, health, trust, or behavior. The total survey sample included 1,235 respondents.

Table 2: Sample Comparison

	2021 ACS n=3,252,599	2023 SSRS Survey n=1,115
Age	47.961	47.629
Female	0.510	0.517
White	0.636	0.599
Black	0.118	0.135
Asian	0.061	0.062
Hispanic	0.169	0.182
High School Graduate	0.273	0.302
College Graduate+	0.325	0.343
Married	0.482	0.489

Notes: Appendix Table 2 presents results selected weighted means from 2021 American Community Survey (Ruggles et al., 2021) and our SSRS generated sample.

2 Text Analysis

Word Cloud

ChatGPT generated the word cloud using the following process: Data Preparation: The survey data was provided in a CSV file, containing a single column of text responses. The file was read and processed using Python's Pandas library. Text Cleaning and Stopword Removal: The text corpus was cleaned to remove punctuation and standardize the text (e.g., converting all text to lowercase for uniformity). Stopwords - words in the English language that are frequent but carry little semantic meaning - were removed. For this word cloud, a standard list of stopwords was used. Additionally, the following words, which were included in the survey question, were also removed: "health", "care", "healthcare", "trust", "system", and "US". Word Cloud Generation: The cleaned and processed text was then used to generate the word cloud. This was done using the WordCloud module in Python, which sizes words based on their frequency in the text corpus. Thus, the most frequent words appear larger in the word cloud. Iterative Refinement: The word cloud was refined iteratively. Based on initial visualizations, additional stopwords were identified by the authors and removed. These words included "etc", "think", "believe", "yet", "many". This process was repeated until the word cloud accurately represented the key themes and terms in the survey responses. Visualization: The resulting image was displayed using matplotlib, a plotting library in Python.

Thematic Analysis

ChatGPT coded the comments according to whether they included the themes defined below. The analysis was conducted using the Python programming language, primarily utilizing the Pandas and regular expression (re) libraries. Pandas, a data manipulation library, was employed to read the survey data from a CSV file and to facilitate the processing of textual data. Each comment was systematically examined for the presence of specific keywords and phrases related to predefined themes (see below). The regular expression library was utilized to perform pattern matching, ensuring that variations of keywords and phrases, irrespective of case, were identified. For each theme, a new binary variable was created, coded as '1' if the theme was mentioned in the comment and '0' otherwise.

Quality of Care: This category includes references to the performance of healthcare professionals, the effectiveness of treatments, and patient outcomes. Comments were classified as "Quality of Care" if they contained keywords or phrases like "performance," "effectiveness," "patient outcome," and similar terms that directly relate to the quality of healthcare services. **Access to Care**: Comments discussing the ease or difficulty of accessing healthcare services were categorized here. Keywords triggering this classification included "access," "availability," "appointments," "distance," "specialists," and other terms related to accessing healthcare services. **Cost of Care**: This category was for comments mentioning affordability, insurance coverage, out-of-pocket expenses, and the overall financial burden of healthcare. Keywords such as "affordable," "insurance," "expense," "financial burden," "over charge," "cost," "expensive," and "deductible" were used for classification. **Patient Safety**: Concerns about medical errors, hospital-acquired infections, and overall safety measures in healthcare settings were classified here. Relevant keywords included "medical error," "infection," "safety measures," and similar. **Communication**: The focus here was on how well healthcare providers communicate with patients. Keywords for classification included "communicate," "clarity," "listening," "empathy," and related terms. **Technology**: References to the use of modern technology

in healthcare such as electronic health records, telemedicine, and new treatment methods were classified under this category. **Bureaucracy**: This category included issues related to healthcare administration, like insurance claims, paperwork, and dealing with healthcare bureaucracies. Keywords for this category were "administration," "insurance claims," "paperwork," and similar. **Equity and Inclusivity**: Discussions about how the healthcare system serves diverse populations were classified here. Keywords included "diverse populations," "racial," "ethnic," "LGBTQ+," "disabilities," "discrimination," and "exploitation." **Public Health Policy**: Comments on government policies and public health initiatives, including preventive care, vaccination programs, and health education, were categorized under this topic. **Personal Experiences**: Any personal anecdotes or stories about interactions with the healthcare system, like mentions of misdiagnosis or overlooked symptoms, were classified here. The criteria were expanded to include any mention of personal or a family member's experience. **Skepticism**: General distrust in the healthcare system was categorized here. This was expanded to include mentions of "politics" and "politicians," reflecting a broader definition of skepticism. **Financial Motivations**: Comments hinting at financial motivations behind healthcare practices or concerns about the commercial aspects of healthcare were classified under this category.

Table 3: Comment Domains by Trust

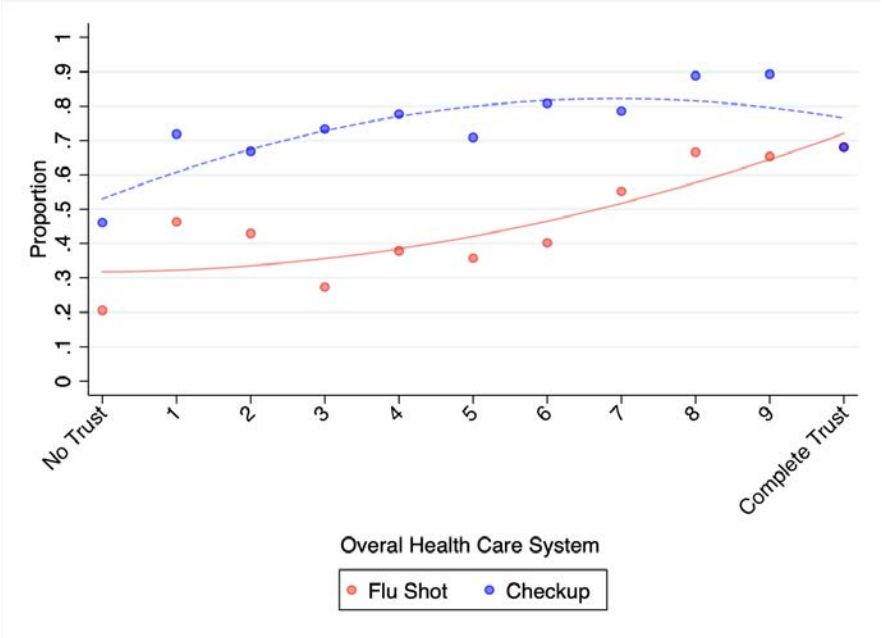
	Quartiles of Overall Trust					
	Mean	Lowest	Second	Third	Highest	p-value
Cost of Care	0.203	0.256	0.239	0.209	0.098	0.000
General Observations and Beliefs	0.170	0.146	0.155	0.184	0.202	0.312
Financial Motivations	0.161	0.280	0.160	0.127	0.061	0.000
Skepticism	0.084	0.076	0.068	0.122	0.078	0.336
Access to Care	0.056	0.073	0.041	0.039	0.068	0.263
COVID-19 Policy Concerns	0.042	0.055	0.054	0.032	0.021	0.105
Quality of Interactions	0.036	0.041	0.037	0.045	0.022	0.456
Personal Experiences	0.034	0.023	0.033	0.028	0.052	0.455
Quality of Care	0.016	0.019	0.014	0.020	0.011	0.849
Communication	0.005	0.013	0.005	0.000	0.000	0.068
Equity and Inclusivity	0.005	0.006	0.007	0.007	0.000	0.120
Public Health Policy	0.004	0.000	0.013	0.000	0.000	0.116
Patient Safety	0.002	0.000	0.000	0.004	0.003	0.368
Bureaucracy	0.002	0.004	0.000	-0.000	0.003	0.367
Technology	0.000	0.000	0.000	0.000	0.000	.

Notes: Table 3 presents the overall means and means within quartiles of the overall trust question for selected individual characteristics. Trust quartiles correspond to the overall trust question presented in Figure 1 with cutoffs of [0,4], [5,6], [7], and [8,10], respectively. All statistics are weighted to reflect the United States population over the age of 18. The p-value reported in the last column is on the unadjusted Wald test that there is no statistical difference between means of each characteristic in the lowest quartile and other quartiles of the overall trust question distribution. $n = 1,115$

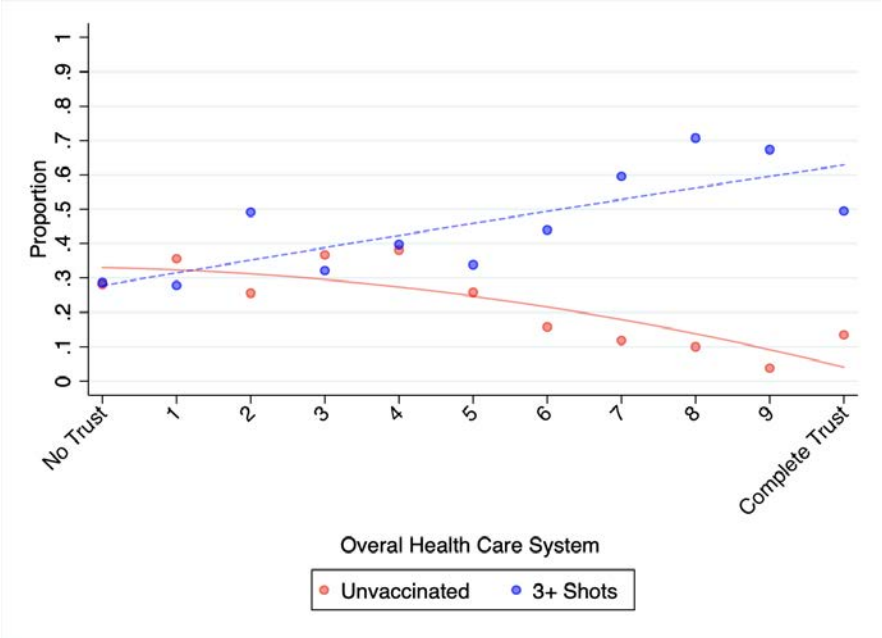
3 Robustness

Figure 1: Behavior by Trust Value

a. Anticipated Behavior by Trust



b. COVID Vaccine by Trust



Notes: Proportions of different prospective behaviors and COVID-19 vaccine states by the likert measure of trust of the overall health care system trust question (a. and c.) and observed income personal income bins (b. and d.). Figures a. and c. include quadratic fit lines through scatter plots. Data are weighted using survey weights to reflect the United States population over the age of 18. $n = 1,115$

Table 4: Regression Results: Behavior and Trust by Controls

	(1)	(2)	(3)	(4)	(5)	(6)
Past Flu Shot						
Trust $\in [5,6]$	0.032	0.031	0.016	0.015	0.009	0.010
	(0.043)	(0.041)	(0.040)	(0.040)	(0.040)	(0.039)
Trust $\in [7]$	0.179***	0.145***	0.118**	0.123***	0.102**	0.104**
	(0.048)	(0.047)	(0.047)	(0.047)	(0.047)	(0.047)
Trust $\in [8,10]$	0.329***	0.284***	0.269***	0.277***	0.248***	0.247***
	(0.045)	(0.045)	(0.043)	(0.044)	(0.045)	(0.044)
Past Check-up						
Trust $\in [5,6]$	0.071	0.064	0.046	0.045	0.045	0.047
	(0.043)	(0.039)	(0.039)	(0.038)	(0.038)	(0.038)
Trust $\in [7]$	0.103**	0.069	0.051	0.055	0.054	0.056
	(0.045)	(0.042)	(0.042)	(0.042)	(0.042)	(0.042)
Trust $\in [8,10]$	0.138***	0.084**	0.069*	0.072*	0.072*	0.074*
	(0.042)	(0.040)	(0.040)	(0.039)	(0.039)	(0.039)
Past Prescription						
Trust $\in [5,6]$	0.029	0.031	0.026	0.025	0.024	0.025
	(0.042)	(0.037)	(0.037)	(0.036)	(0.036)	(0.036)
Trust $\in [7]$	0.099**	0.075*	0.070*	0.077**	0.073*	0.075**
	(0.042)	(0.039)	(0.039)	(0.037)	(0.038)	(0.037)
Trust $\in [8,10]$	0.043	-0.000	-0.003	0.010	0.006	0.007
	(0.043)	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)
Demographics		✓	✓	✓	✓	✓
SES			✓	✓	✓	✓
Health				✓	✓	✓
Views					✓	✓
Area Level						✓

Notes: Regression coefficients of each retrospective or anticipated behavior on the trust quartiles indicated in Figure 1. Each column represents one regression. Past year dependent variables reflect retrospective behavior, and next year dependent variables reflect anticipated future behavior. COVID-19 vaccine status reflects vaccination status at the time of interview. All regressions include controls for characteristics described in Tables 1 and 2. All regressions are population-weighted. The mean reported in the first row is for the full estimation sample. *** p<0.01, ** p<0.05, * p<0.1. $n = 1,115$.

Table 5: Regression Results: Behavior and Trust Robustness

	(1)	(2)	(3)	(4)	(5)	(6)
Flu Shot						
Trust $\in [5,6]$	0.051	0.050	0.037	0.037	0.031	0.032
	(0.043)	(0.041)	(0.040)	(0.040)	(0.039)	(0.039)
Trust $\in [7]$	0.226***	0.190***	0.163***	0.174***	0.153***	0.156***
	(0.048)	(0.047)	(0.046)	(0.046)	(0.046)	(0.046)
Trust $\in [8,10]$	0.340***	0.302***	0.275***	0.290***	0.261***	0.260***
	(0.044)	(0.045)	(0.044)	(0.044)	(0.045)	(0.045)
Check-up						
Trust $\in [5,6]$	0.080*	0.080**	0.067*	0.069*	0.067*	0.066*
	(0.042)	(0.040)	(0.040)	(0.039)	(0.039)	(0.039)
Trust $\in [7]$	0.111**	0.086**	0.072*	0.073*	0.065	0.063
	(0.044)	(0.043)	(0.042)	(0.042)	(0.042)	(0.041)
Trust $\in [8,10]$	0.179***	0.150***	0.132***	0.139***	0.129***	0.130***
	(0.039)	(0.039)	(0.038)	(0.039)	(0.039)	(0.038)
No Covid Vaccine						
Trust $\in [5,6]$	-0.120***	-0.115***	-0.103***	-0.104***	-0.099***	-0.099***
	(0.041)	(0.040)	(0.039)	(0.039)	(0.038)	(0.038)
Trust $\in [7]$	-0.215***	-0.196***	-0.170***	-0.172***	-0.151***	-0.151***
	(0.039)	(0.039)	(0.037)	(0.037)	(0.037)	(0.037)
Trust $\in [8,10]$	-0.238***	-0.207***	-0.196***	-0.201***	-0.168***	-0.169***
	(0.038)	(0.038)	(0.037)	(0.037)	(0.037)	(0.037)
Demographics		✓	✓	✓	✓	✓
SES			✓	✓	✓	✓
Health				✓	✓	✓
Views					✓	✓
Area Level						✓

Notes: Regression coefficients of each retrospective or anticipated behavior on the trust quartiles indicated in Figure 1. Each column represents one regression. Past year dependent variables reflect retrospective behavior, and next year dependent variables reflect anticipated future behavior. COVID-19 vaccine status reflects vaccination status at the time of interview. All regressions include controls for characteristics described in Tables 1 and 2. All regressions are population-weighted. The mean reported in the first row is for the full estimation sample. *** p<0.01, ** p<0.05, * p<0.1. $n = 1,115$.

Table 6: Regression Results: Behavior and Trust Robustness

	(1)	(2)	(3)	(4)	(5)	(6)
Fully Vaccinated						
Trust $\in [5, 6]$	0.030	0.026	0.005	0.006	-0.005	-0.005
	(0.043)	(0.041)	(0.040)	(0.040)	(0.038)	(0.039)
Trust $\in [7]$	0.241***	0.201***	0.166***	0.165***	0.130***	0.129***
	(0.048)	(0.046)	(0.045)	(0.045)	(0.045)	(0.045)
Trust $\in [8, 10]$	0.310***	0.252***	0.226***	0.228***	0.178***	0.177***
	(0.045)	(0.045)	(0.043)	(0.044)	(0.044)	(0.044)
Demographics		✓	✓	✓	✓	✓
SES			✓	✓	✓	✓
Health				✓	✓	✓
Views					✓	✓
Area Level						✓

Notes: Regression coefficients of each retrospective or anticipated behavior on the trust quartiles indicated in Figure 1. Each column represents one regression. Past year dependent variables reflect retrospective behavior, and next year dependent variables reflect anticipated future behavior. COVID-19 vaccine status reflects vaccination status at the time of interview. All regressions include controls for characteristics described in Tables 1 and 2. All regressions are population-weighted. The mean reported in the first row is for the full estimation sample. *** p<0.01, ** p<0.05, * p<0.1. $n = 1,115$.

3.1 Behavior and Sector-Specific Trust

Table 7: Regression Results: Sector Trust

	Past Year			Next Year		COVID-19 Vaccine	
	Flu shot	Check-up	Prescription	Flu Shot	Check-up	Not Vac.	Fully Vac.
Doctor Trust Quartile							
Second	0.108***	0.021	0.030	0.132***	0.140***	-0.076*	0.077*
	(0.041)	(0.039)	(0.036)	(0.040)	(0.040)	(0.040)	(0.040)
Third	0.216***	0.092**	0.040	0.214***	0.189***	-0.154***	0.158***
	(0.043)	(0.040)	(0.036)	(0.042)	(0.039)	(0.038)	(0.043)
Fourth	0.282***	0.056	0.022	0.318***	0.128***	-0.161***	0.206***
	(0.046)	(0.042)	(0.041)	(0.045)	(0.043)	(0.040)	(0.044)
Nurse Trust Quartile							
Second	0.129***	0.045	0.054*	0.134***	0.096***	-0.071**	0.063*
	(0.037)	(0.036)	(0.032)	(0.036)	(0.036)	(0.035)	(0.036)
Third	0.181***	0.111***	0.022	0.227***	0.130***	-0.135***	0.141***
	(0.046)	(0.041)	(0.040)	(0.045)	(0.041)	(0.039)	(0.045)
Fourth	0.258***	0.038	0.075	0.272***	0.094**	-0.124***	0.095*
	(0.058)	(0.049)	(0.046)	(0.057)	(0.047)	(0.042)	(0.053)
Insurance Trust Quartile							
Second	-0.016	0.019	-0.014	0.010	0.028	-0.005	-0.015
	(0.037)	(0.035)	(0.034)	(0.038)	(0.035)	(0.034)	(0.038)
Third	0.022	0.010	0.026	0.075	0.029	-0.069*	0.034
	(0.058)	(0.055)	(0.045)	(0.056)	(0.051)	(0.037)	(0.056)
Fourth	0.068	0.053	0.005	0.073	0.063	-0.016	0.012
	(0.045)	(0.040)	(0.038)	(0.045)	(0.039)	(0.038)	(0.042)
Hospitals Trust Quartile							
Second	0.098**	0.056	0.030	0.122***	0.033	-0.050	0.047
	(0.046)	(0.042)	(0.044)	(0.047)	(0.043)	(0.039)	(0.048)
Third	0.171***	0.044	0.043	0.182***	0.077**	-0.093***	0.145***
	(0.037)	(0.033)	(0.029)	(0.036)	(0.032)	(0.029)	(0.036)
Fourth	0.252***	0.085**	0.060	0.272***	0.110***	-0.087**	0.071
	(0.050)	(0.041)	(0.041)	(0.047)	(0.040)	(0.039)	(0.050)

Notes: Regression coefficients of each retrospective or anticipated behavior on the trust quartiles indicated for each sector-specific trust domain. Each column presents estimates from *separate* regressions for each sector domain conditional on controls. Past year dependent variables reflect retrospective behavior, and next year dependent variables reflect anticipated future behavior. COVID-19 vaccine status reflects vaccination status at the time of interview. All regressions include controls for characteristics described in Tables 1 and 2. All regressions are population-weighted. The mean reported in the first row is for the full estimation sample. *** p<0.01, ** p<0.05, * p<0.1. $n = 1,115$.

Table 8: Regression Results: Sector Trust Continued

	Past Year			Next Year		COVID-19 Vaccine	
	Flu shot	Check-up	Prescription	Flu Shot	Check-up	Not Vac.	Fully Vac.
Medicare Trust Quartile							
Second	0.019	0.021	0.075**	0.032	0.059	-0.005	0.033
	(0.039)	(0.037)	(0.033)	(0.039)	(0.038)	(0.035)	(0.039)
Third	0.084**	0.086**	0.017	0.160***	0.147***	-0.036	0.105**
	(0.042)	(0.037)	(0.035)	(0.041)	(0.037)	(0.034)	(0.042)
Fourth	0.183***	0.140***	0.069	0.191***	0.176***	-0.048	0.061
	(0.054)	(0.045)	(0.044)	(0.051)	(0.045)	(0.044)	(0.049)
Pharma. Trust Quartile							
Second	0.004	0.015	0.057*	-0.003	-0.021	-0.037	0.012
	(0.043)	(0.039)	(0.034)	(0.042)	(0.040)	(0.038)	(0.042)
Third	0.061	0.045	-0.020	0.103**	0.038	-0.061*	0.073*
	(0.040)	(0.037)	(0.035)	(0.041)	(0.036)	(0.035)	(0.039)
Fourth	0.122***	0.057	0.010	0.112***	0.076**	-0.089**	0.064
	(0.043)	(0.039)	(0.036)	(0.042)	(0.038)	(0.035)	(0.042)
CDC Trust Quartile							
Second	0.132***	0.014	0.083**	0.130***	0.101**	-0.159***	0.190***
	(0.040)	(0.040)	(0.036)	(0.039)	(0.039)	(0.039)	(0.039)
Third	0.285***	0.064	0.043	0.318***	0.137***	-0.217***	0.317***
	(0.042)	(0.040)	(0.038)	(0.041)	(0.039)	(0.037)	(0.042)
Fourth	0.346***	0.104**	0.087**	0.384***	0.168***	-0.186***	0.304***
	(0.046)	(0.042)	(0.041)	(0.044)	(0.041)	(0.040)	(0.044)
U.S. Gov. Trust Quartile							
Second	0.046	-0.026	-0.019	0.066*	-0.004	-0.117***	0.071*
	(0.037)	(0.036)	(0.032)	(0.037)	(0.035)	(0.035)	(0.037)
Third	0.149***	0.046	-0.028	0.184***	0.087**	-0.152***	0.208***
	(0.045)	(0.040)	(0.037)	(0.044)	(0.039)	(0.036)	(0.043)
Fourth	0.207***	0.028	-0.040	0.213***	0.034	-0.140***	0.173***
	(0.054)	(0.046)	(0.044)	(0.054)	(0.047)	(0.038)	(0.049)

Notes: Regression coefficients of each retrospective or anticipated behavior on the trust quartiles indicated for each sector-specific trust domain. Each column presents estimates from *separate* regressions for each sector domain conditional on controls. Past year dependent variables reflect retrospective behavior, and next year dependent variables reflect anticipated future behavior. COVID-19 vaccine status reflects vaccination status at the time of interview. All regressions include controls for characteristics described in Tables 1 and 2. All regressions are population-weighted. The mean reported in the first row is for the full estimation sample. *** p<0.01, ** p<0.05, * p<0.1. $n = 1,115$.

3.2 Alternative Definition of Trust: PCA

This section defines an alternative measure of trust in which we use principal component analysis (PCA) to reduce the dimension of several trust measures from our survey. Specifically, we conduct PCA on the overall trust measure and each of the sector-specific trust measures, including doctors, nurses, hospitals, health insurers, Medicare, pharmaceutical companies, and the CDC. Naturally, these measures are highly correlated, which is necessary for PCA to meaningfully reduce the dimension. In this case, the first principal component explains 64.31% of the variation in the nine trust measures from our survey. We call this variable "PCA Trust." After a table of PCA diagnostics, we show that quartiles of this measure of trust correlate with our behaviors. Then, we repeat the econometric exercises from the paper with this measure.

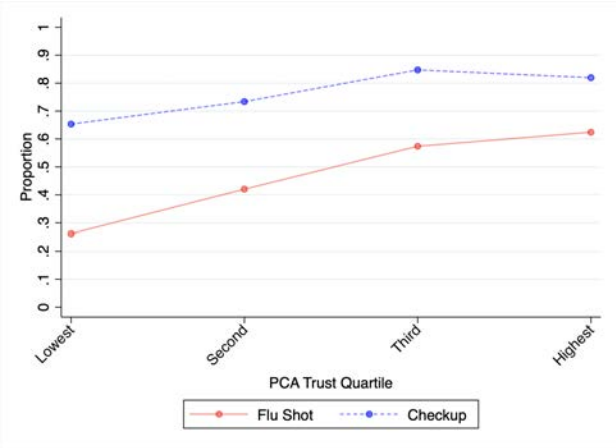
Table 9: PCA Diagnostics

Variable	KMO Stat	Eigenvector
Trust Measure		
Overall	0.9465	0.3717
Doctors	0.8661	0.3739
Nurse	0.8703	0.3196
Hospitals	0.9363	0.3815
Insurers	0.8626	0.3522
Medicare	0.9178	0.3529
Pharma	0.8916	0.3529
CDC	0.9218	0.3183

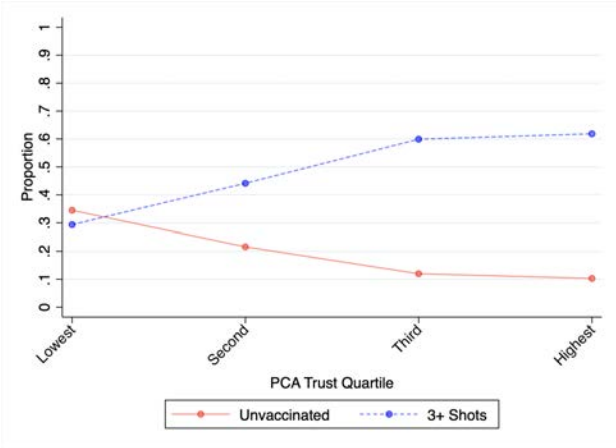
Notes: $n = 1,115$.

Figure 2: Behavior by PCA Trust Quartile

a. Anticipated Behavior by PCA Trust



b. COVID Vaccine by PCA Trust



Notes: Proportions of different prospective behaviors and COVID-19 vaccine states by the Likert measure of trust of the overall health care system trust question (a. and c.) and observed income personal income bins (b. and d.). Figures a. and c. include quadratic fit lines through scatter plots. Data are weighted using survey weights to reflect the United States population over the age of 18. $n = 1,115$

Table 10: Regression Results: Behavior and PCA Trust

	Past Year			Next Year		COVID-19 Vaccine	
	Flu shot	Check-up	Prescription	Flu Shot	Check-up	Not Vac.	Fully Vac.
Mean	0.480	0.723	0.751	0.470	0.763	0.196	0.488
PCA Trust	0.042***	0.018***	0.009	0.048***	0.027***	-0.024***	0.030***
	(0.007)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.007)
Education							
High School Graduate	0.032	-0.010	0.105*	0.154***	0.073	-0.005	0.011
	(0.062)	(0.063)	(0.057)	(0.058)	(0.065)	(0.062)	(0.065)
Some College	0.079	0.091	0.134**	0.185***	0.109*	-0.042	0.082
	(0.061)	(0.063)	(0.058)	(0.058)	(0.065)	(0.063)	(0.066)
College Graduate	0.192***	0.108	0.142**	0.304***	0.140**	-0.102	0.160**
	(0.069)	(0.069)	(0.063)	(0.066)	(0.070)	(0.064)	(0.073)
Graduate Degree	0.230***	0.109	0.138**	0.330***	0.173**	-0.121*	0.229***
	(0.070)	(0.068)	(0.063)	(0.066)	(0.068)	(0.065)	(0.074)
Annual Income							
\$50k-\$75k	-0.014	-0.020	-0.001	-0.030	0.026	-0.050	-0.029
	(0.044)	(0.042)	(0.038)	(0.043)	(0.040)	(0.038)	(0.043)
\$75k-\$100k	0.006	0.074*	0.043	-0.028	0.105**	-0.036	0.030
	(0.047)	(0.043)	(0.041)	(0.047)	(0.041)	(0.039)	(0.046)
>\$100k	0.033	0.105**	0.104**	0.046	0.123***	-0.070*	0.111**
	(0.048)	(0.044)	(0.041)	(0.046)	(0.043)	(0.040)	(0.047)
δ	2.931	3.638	3.509	3.248	4.165	2.467	2.150

Notes: Regression coefficients of each retrospective or anticipated behavior on the trust quartiles indicated in Figure 1. Each column represents one regression. Past year dependent variables reflect retrospective behavior, and next year dependent variables reflect anticipated future behavior. COVID-19 vaccine status reflects vaccination status at the time of interview. All regressions include controls for characteristics described in Tables 1 and 2. All regressions are population-weighted. The mean reported in the first row is for the full estimation sample. *** p<0.01, ** p<0.05, * p<0.1. $n = 1,115$.

Table 11: Regression Results: Behavior and PCA Trust with Controls for Mechanisms

	Past Year			Next Year		COVID-19 Vaccine	
	Flu shot	Check-up	Prescription	Flu Shot	Check-up	Not Vac.	Fully Vac.
Mean	0.480	0.723	0.751	0.470	0.763	0.196	0.488
Panel 1: No Controls for Mechanisms							
PCA Trust	0.042***	0.018***	0.009	0.048***	0.027***	-0.024***	0.030***
	(0.007)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.007)
Panel 2: With Controls for Insurance, Value of Life, and Time Preferences							
PCA Trust	0.041***	0.018***	0.010	0.046***	0.029***	-0.025***	0.031***
	(0.007)	(0.007)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)
*Panel 3: With **Additional** Controls for Beliefs and Disutility*							
PCA Trust	0.027***	0.005	0.004	0.026***	0.011	-0.019**	0.015
	(0.009)	(0.008)	(0.008)	(0.009)	(0.009)	(0.008)	(0.009)

Notes: Regression coefficients of each retrospective or anticipated behavior on the trust quartiles indicated in Figure 1. Each column represents one regression. Past year dependent variables reflect retrospective behavior, and next year dependent variables reflect anticipated future behavior. COVID-19 vaccine status reflects vaccination status at the time of interview. All regressions include controls for characteristics described in Tables 1 and 2. All regressions are population-weighted. The mean reported in the first row is for the full estimation sample. *** p<0.01, ** p<0.05, * p<0.1. $n = 1,115$.

Table 12: Dynamic Regression Results

	Flu Shot	Check-up
PCA Trust	0.016***	0.016***
	(0.006)	(0.005)
Past Behavior		
Flu shot	0.102***	0.663***
	(0.030)	(0.032)
Check-up	0.348***	0.049*
	(0.039)	(0.028)
Prescription	0.106***	0.018
	(0.040)	(0.032)
Not Vaccinated	-0.047	-0.044
	(0.041)	(0.031)
Fully Vaccinated	-0.040	0.087***
	(0.030)	(0.031)

Notes: Regression results of anticipated behavior on trust and past year retrospective behavior. COVID-19 vaccine status reflects vaccination status at the time of interview. All regressions include controls for characteristics described in Tables 1, 2, and area-level characteristics. All regressions are population-weighted. The mean reported in the first row is for the full estimation sample. *** p<0.01, ** p<0.05, * p<0.1. $n = 1,115$.

Table 13: Regression Results: Heterogeneity by Race and Sex PCA Trust

	Past Year			Next Year		COVID-19 Vaccine	
	Flu shot	Check-up	Prescription	Flu Shot	Check-up	Not Vac.	Fully Vac.
Race: Black							
Black	-0.079*	0.018	-0.097**	-0.120***	-0.055	0.087**	-0.139***
	(0.045)	(0.045)	(0.044)	(0.045)	(0.043)	(0.043)	(0.047)
PCA Trust	0.043***	0.021***	0.007	0.051***	0.024***	-0.027***	0.033***
	(0.008)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
PCA Trust × Black	-0.010	-0.016	0.016	-0.017	0.017	0.014	-0.017
	(0.015)	(0.016)	(0.015)	(0.014)	(0.015)	(0.017)	(0.016)
Sex: Female							
Female	0.036	0.117***	0.149***	0.006	0.051*	0.047*	-0.017
	(0.032)	(0.029)	(0.028)	(0.031)	(0.029)	(0.026)	(0.031)
PCA Trust	0.031***	0.023**	0.010	0.044***	0.020**	-0.017*	0.037***
	(0.009)	(0.010)	(0.010)	(0.009)	(0.010)	(0.009)	(0.009)
PCA Trust × Female	0.020	-0.009	-0.001	0.007	0.012	-0.014	-0.012
	(0.013)	(0.012)	(0.012)	(0.012)	(0.013)	(0.012)	(0.012)
Age ≥ 65							
≥ 65	0.068	0.042	0.019	0.078	-0.014	0.098**	-0.070
	(0.062)	(0.048)	(0.041)	(0.060)	(0.052)	(0.047)	(0.060)
PCA Trust	0.034***	0.021***	0.011	0.041***	0.032***	-0.019**	0.026***
	(0.008)	(0.008)	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)
PCA Trust × ≥ 65	0.037**	-0.017	-0.007	0.036**	-0.023	-0.031**	0.023
	(0.016)	(0.013)	(0.010)	(0.016)	(0.015)	(0.014)	(0.018)
Political Affiliation: Republican							
Republican	-0.121***	0.010	-0.014	-0.122***	-0.021	0.178***	-0.241***
	(0.042)	(0.037)	(0.033)	(0.040)	(0.036)	(0.031)	(0.039)
PCA Trust	0.043***	0.026***	0.011	0.043***	0.033***	-0.012	0.025***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
PCA Trust × Republican	-0.005	-0.030**	-0.005	0.019	-0.020	-0.046***	0.018
	(0.015)	(0.013)	(0.013)	(0.014)	(0.014)	(0.015)	(0.015)

Notes: Regression coefficients of each retrospective or anticipated behavior on the trust quartiles indicated in Figure 1. Each column represents one regression. Black is relative to all other races. Past year dependent variables reflect retrospective behavior, and next year dependent variables reflect anticipated future behavior. COVID-19 vaccine status reflects vaccination status at the time of interview. All regressions include controls for characteristics described in Tables 1 and 2. All regressions are population-weighted. *** p<0.01, ** p<0.05, * p<0.1. $n = 1,115$.

References

Ruggles, Steven, Fitch, Catherine A., Goeken, Ronald, Hacker, J. David, Nelson, Matt A., Roberts, Evan, Schouweiler, Megan, & Sobek., Matthew. 2021. IPUMS Ancestry Full Count Data: Version. Tech. rept. 2.