How do online conflict disclosures support enforcement?
Evidence from personal financial disclosures and public corruption

Alexandra A. Scherf*
London School of Economics and Political Science

Draft: October 3, 2022

ABSTRACT

Public corruption is a concern for democracies around the world. In the U.S., states have responded to this issue by publishing personal financial disclosures (PFD) for public officials online. PFD are a conflict-of-interest disclosure designed to relieve agency conflicts between private citizens and government officials by documenting overlaps between officials' financial interests and public responsibilities. This paper explores whether and how online PFD supports anti-corruption enforcement. I present a stylized model illustrating how online PFD leads investigators to increase case referral volume and quality. Empirically, I find that online PFD for local officials is associated with increased referral rates and greater likelihoods of prosecution conditional on referral. I conduct 126 field interviews of federal prosecutors, journalists, and ethics commissions to understand the mechanisms behind these results. I conclude that online PFD supports the enforcement of local corruption by reducing disclosure acquisition costs for enforcement agents.

Keywords: disclosure, disclosure processing costs, corruption, financial misconduct

* I am grateful for the financial support of Harvard Business School and the London School of Economics. I thank the Transactional Records Access Clearinghouse of Syracuse University (TRAC) for providing data for this project through the TRAC Fellows Program. All errors and omissions are my own.

I. INTRODUCTION

In 2015 Sheldon Silver, former Speaker of the New York State Assembly, was convicted of corruption after nearly forty years of public service. Silver, who once commanded "viselike" control of the Assembly, used his official role to funnel clients to multiple law firms which shared fees with him. According to the New York Times, Silver "stood out in financial disclosure reports that showed him to be one of the largest earners of outside income among New York State politicians" (Weiser and Craig 2015). In Silver's indictment, prosecutors highlighted his "fraudulent representations and omissions about his outside income" including on his personal financial disclosure (PFD) form.[1] Reporters also noted that misrepresentations about his outside income would become "focal points of the government's case" against Silver, who was ultimately sentenced to 78 months in prison.[2]

Over the past two decades, U.S. states have attempted to manage public corruption by publishing PFD for public officials online. However, states continue to exhibit wide variation in the accessibility of PFD for state and local filers. As of 2017, only 35 states made PFD publicly available online for state-level officials and 17 states offered PFD online for local-level officials.[3] The goal of PFD is to mitigate agency conflicts between public officials and private citizens by documenting overlaps between officials' private financial interests and public responsibilities. Yet the value of states publishing PFD online to support anti-corruption efforts is nonobvious. On the one hand, online PFD ought to make disclosures more available for all readers – members of the

[1] Silver would publicly claim that "his outside legal work was not connected to his official position or to [s]tate government, and that none of his clients had any business before the state" (DOJ 2015, 4-5). Prosecutors discovered that Silver arranged for state grants to be awarded to a cancer researcher who, in return, directed clients to Silver's firm Weitz & Luxenberg. In addition, Silver persuaded two real estate developers to conduct business with another law firm, Goldberg & Iryami, which shared fees with Silver (Weiser and Craig 2015).
[2] See Weiser and Craig 2015 and Weiser and McKinley 2020. At the time of writing, Silver is headed to prison after losing a bid to serve his sentence at home due to COVID19.
[3] See Table 1 for an overview.

public, media, and enforcement agents. On the other hand, online PFD may be superfluous because readers can simply request disclosure access (e.g., via FOIA or subpoena).[4]

This paper explores whether and how state-level adoption of online PFD for state and local filers supports anti-corruption enforcement. I find that enforcement agents (i.e., investigators from the Federal Bureau of Investigation (FBI) and prosecutors from the Department of Justice (DOJ)) appear to utilize officials' PFD when prosecuting public corruption, which is a form of financial fraud against the government.[5] Empirically, online PFD is associated with increased enforcement activity for local corruption, measured by case referral and prosecution rates. Using field data, I propose that online dissemination reduces disclosure acquisition costs which leads to increased enforcement activity. Overall, the paper suggests that lowering acquisition costs for public disclosures enhances regulatory efficiency.

These findings build upon two streams of accounting literature on (1) disclosure and (2) financial fraud. First, I argue that disclosure processing costs exist and have real economic impacts on enforcement. I draw on recent scholarship on disclosure processing costs for equity investors suggesting that public information – when it is difficult to acquire or integrate into decision-making – is a form of costly private information (Blankespoor, DeHaan, and Marinovic 2020; Blankespoor, DeHaan, Wertz, and Zhu 2019). This implies that how public information is disseminated can have meaningful impacts on the ways readers use that information. Blankespoor et al. 2019 further decompose disclosure processing costs into acquisition and integration costs.[6]

[4] The information contained in the PFD should be the same regardless of whether the enforcement agent accesses the disclosure through formal request (i.e., subpoena, FOIA) or online.

[5] See Appendix D, Panel A. Conceptually, public corruption is misappropriation public assets for the officials' private economic gain. The three main legal provisions supporting public corruption include: 18 USC 1346 (federal mail and wire fraud statute), 18 USC 666 (federal program funding statute), and 18 USC 1951 (federal extortion statute) (DiBiagio 2020, 1).

[6] There is a third type of processing cost, "awareness cost" which does not appear to be relevant in my setting. Here, awareness costs could arise from enforcement agents becoming aware that PFD exist. I find that online PFD did not impact awareness costs, as most prosecutors and journalists appear aware of PFD (Appendix D, A-Q4 and B-Q2).

In the context of federal agents using PFD, these costs include: (1) acquisition costs from acquiring and extracting usable information from PFD and (2) integration costs from combining PFD information with other signals to make case referral and prosecution decisions. I observe that online PFD primarily supports anti-corruption enforcement by reducing acquisition costs for enforcement agents. Specifically, online PFD enables agents to obtain the disclosures through a more efficient and discrete channel than formally requesting PFD from the state.[7] As a secondary effect, online PFD may further reduce agents' integration costs by increasing public awareness of officials' finances which can help develop leads.

More broadly, my findings suggest that reducing processing costs for public disclosures can benefit regulators. This result is particularly relevant in settings where disclosures are used to target agency problems raised by financial conflicts-of-interest. Though there are many opportunities for such conflicts in the financial system, little is known about whether and how conflict disclosures are useful for regulating misconduct. For example, auditors are expected to remain independent when they audit public companies. As a result, audit firms will commonly ask their staff to confirm that they do not have personal financial relationships with the client prior to commencing the audit. These confirmations are a type of conflict-of-interest disclosure which firms are currently not required to make public. However, my study implies that lowering the cost of access to these disclosures may help readers identify cases where auditor independence may be compromised (albeit at the cost of auditor privacy).

[7] To clarify, this paper focuses on the medium of PFD availability (i.e., online versus not online). Within the category of online PFD, I do not distinguish between different ways information can be made available online (i.e., searchable data fields versus scanned hard-copy). The paper's claims about reduced acquisition costs involve lowering the costs associated with accessing PFD rather than reducing the readers' ability to extract data from a given disclosure.

Second, this study contributes to accounting literature on financial crime by exploring how federal enforcement agents use financial conflict disclosures in anti-corruption enforcement. Much accounting research on financial misconduct has focused on civil regulators such as the Securities and Exchange Commission (SEC). However, agencies such as DOJ and FBI are key enforcement bodies for financial crime in the U.S., and their internal processes for investigating and prosecuting such crimes generally remain a black box.[8] To the best of my knowledge, this paper is the first to use large-sample field data to shed light on how one type of disclosure (financial conflict disclosures) supports anticorruption enforcement, and how disclosure medium matters to agents.

Beyond accounting scholars, financial regulators, and enforcement agencies, the results of this paper are also relevant to anti-corruption policymakers and local market participants. First, global financial institutions like the World Bank and International Monetary Fund have expressed interest in understanding PFD's role in anti-corruption.[9] For example, the International Monetary Fund's 2020 Anti-Corruption Challenge solicited proposals on how to implement better financial disclosure systems for public officials. The challenge asserted that PFD "have the potential of being a valuable instrument throughout the anti-corruption value chain as well as […] anti-money laundering and asset recovery." As such, "the potential uses of financial disclosure information deserve[s] greater attention" (IMF 2019). Second, capital market participants (e.g., securities issuers, investors) also stand to benefit from factors like online PFD which support anti-corruption enforcement. This is because public corruption tends to have negative consequences for local firms and investors, including higher restatement likelihoods and audit fees (Jha and Chen 2021), lower

[8] Few recent studies attempt to examine federal enforcement agencies' role in financial crimes and misconducts. For example, Nguyen 2021 examines how the 9/11 terrorist attacks influenced the FBI's prioritization of and resource allocation towards white-collar crime. Similarly, Heese, Krishnan, and Ramasubramanian 2021 study how the DOJ acts as a gatekeeper in overseeing whistleblowing cases of corporate fraud by firms against the U.S. government.
[9] The World Bank has also published practitioner guidance on implementing PFD disclosure and dissemination systems, also called income and asset disclosure systems (IAD) (Haberschon and Trapnell 2012).

firm value and disclosure quality (Dass, Nanda, and Xiao 2016) and lower municipal bond ratings (Butler, Fauver, and Mortal 2009). Thus, market participants ought to have an interest in forces which promote anti-corruption and reduce opportunities for such economic harms.

I execute my study in three stages. First, I propose a stylized model to develop predictions about how online PFD will impact corruption detection and prosecution. The model conceptualizes PFD as an information source which can help investigators learn more about the value of a corruption lead. I consider differences between PFD access under an "online disclosure" regime where PFD is publicly and anonymously available online, and a "request disclosure" regime which imposes investigation frictions on investigators. These frictions represent the disclosure processing costs faced by enforcement agents when they must request access to PFD. One example of these frictions are tipoff costs which are incurred by the investigator when they request PFD from the government which could lead to premature disclosure or information leakage about the investigation. Another example are evidentiary costs, which represent the forgone benefits to investigators of having online PFD accessible to the public and media. By mitigating investigation frictions, online PFD may reduce disclosure acquisition and integration costs relative to request-disclosure regimes. Using the model, I show that online disclosure may be socially optimal compared to request-based regimes if investigation frictions are high and official privacy concerns are low. The model also helps develop two hypotheses: investigators will refer more cases for prosecution under online disclosure (**H1**), and, conditional on referral, online disclosure will lead to a higher probability of prosecution (**H2**). Motivated by prior literature, I extend these hypotheses to test whether their effects vary across pre-existing monitoring mechanisms (i.e., external monitoring by the media and internal monitoring by the state) (**H3a** and **H3b**, respectively).

Second, I test these predictions empirically using data on states which offered online PFD for state and local filers from 2004 to 2017. To understand state motivations for online PFD adoption, I conduct 33 field interviews of state ethics commissions and PFD oversight bodies.[10] I categorize states as "efficiency-motivated" if they adopted online PFD as part of office upgrade or modernization efforts, and "corruption-motivated" if adoption occurred in response to corruption outrage or anti-corruption legislation.[11] To mitigate concerns that alleged corruption outcomes may be driven by contemporaneous corruption concerns or legislation, I limit my analyses to efficiency-motivated adopters. I use these data to test the impact of online PFD adoption on two measures of alleged corruption: (1) referral rate and (2) prosecution rate.

Consistent with my hypotheses, I find that online PFD for local filers is associated with increased referral and prosecution rates for local corruption. Using a matched sample of federal districts, I estimate that local online PFD raises the number of referrals detected in the median district-year from 3 to 7.7—an over twofold increase in referral volume. Local online PFD is also associated with an increase in the prosecution rate by .18, raising the median district-year prosecution rate from 33 percent to 51 percent. These results are robust to falsification tests using placebo treatment years and placebo outcome variables defined at the federal (rather than state or local) corruption level. I also observe that the main effects for **H1** (referral rate) and **H2** (prosecution rate) appear concentrated in districts with high levels of external monitoring (media coverage) and internal monitoring (state ethics budget per employee), respectively. While this suggests that local online PFD may serve as a complement to existing monitoring mechanisms

[10] All field research was approved by my institution's Institutional Review Board (IRB 20-0251; IRB 20-1105).
[11] This methodology follows the narrative approach pioneered by Romer and Romer 2010 and Giroud and Rauh 2019 in the tax literature to address endogeneity concerns linked to policy changes. See discussion in Section IV.

thought to improve government oversight (**H3**), these tests are not conclusive as I do not detect significant differences between subgroups.

However, these results do not extend to state filers. In some respects, the lack of results in this sample is unsurprising. First, the paper examines PFD which is managed and made available online by the state (e.g., state ethics commission). Ex ante I expect that looking at the effect of states adopting online PFD for local filers (rather than state filers) would provide a cleaner setting to observe how online PFD impacts corruption outcomes. This is because state officials are more likely to have control over the content and accessibility of PFD. Whether PFD is available online or via request would not make much difference, as state officials could tailor the rules to obscure or redact information they do not wish to share with the public or enforcement agents. Conversely, local officials are less likely to influence PFD which is managed and disseminated at the state level. When the state adopts online PFD, this may be more revealing for local officials who lack the ability to influence PFD content. I discuss this hypothesis in detail in Section VI and provide two empirical examples of this phenomenon. Second, the sample volume of local corruption referrals and prosecutions is almost three times higher than that of state corruption. This feature of the data may also contribute to the lack of results for state filers.

Third and finally, to understand the real-world mechanisms behind these results I conduct an additional 93 interviews of current and former federal prosecutors and journalists. Overall, I learn that prosecutors see PFD as having both investigative and evidentiary value. As an investigative tool, PFD can help provide links to other evidence and third-party organizations (i.e., non-profits, private firms, etc.) while giving an early-stage picture of an official's self-reported assets. As evidence, PFD—and, in particular, omissions on PFD—can be crucial for establishing criminal intent or consciousness of guilt in hiding or obscuring illicit transactions. Respondents

expected that online PFD would likely increase the number of corruption leads by enhancing public access to information about officials' financial conflicts. For investigators, an online system where PFD can be reviewed anonymously can also prevent premature disclosure about the investigation (Appendix D). Thus, online PFD may support anti-corruption enforcement by (1) helping investigators maintain efficient and covert investigations and (2) increasing public awareness of official conflicts of interest which helps develop case leads.

Overall, this work contributes to prior literature on disclosure and financial fraud while responding to practitioner demand for greater understanding of PFD as an anti-corruption tool. Prior accounting and political economy studies suggest the importance of disclosure transparency for monitoring firms, governments, and public officials (Leuz and Wysocki 2016, Healy and Palepu, 2001, Amiram et al. 2018, Cordis and Warren 2014). The current paper contributes to this scholarship by illustrating that *how* officials' PFD are made publicly accessible can improve enforcement agents' ability to monitor public corruption by reducing disclosure acquisition costs. The study does not argue whether online PFD is socially optimal, but rather provides a framework for considering the costs and benefits of online PFD as an anti-corruption policy. The paper presents empirical estimates for the benefits of online PFD with regards to corruption referral volume and prosecution likelihood. It also offers institutional insights as to why online PFD might support anti-corruption, both directly as an investigative tool and indirectly as case evidence.

Methodologically, this paper also highlights the use of PFD as an instrument for studies on disclosure, enforcement, and private financial interests (i.e., Tahoun and van Lent 2019). Conflict-of-interest disclosure for U.S. public officials is a particularly interesting setting because forty out of fifty states have governing bodies which qualify as less than full-time employers, and 76 percent of state legislators reported outside income on their 2015 PFDs (NCSL 2017, White 2017).

Anecdotal evidence also suggests that public officials are aware of the disclosure's importance.[12] A New York defense lawyer once testified to advising state representatives to hand-deliver their financial disclosure forms to avoid mail fraud charges over any false statements contained within them. The federal judge described the admission as "extraordinary" (Neil 2009).

II. INSTITUTIONAL BACKGROUND AND PRIOR LITERATURE

This paper uses anti-corruption enforcement as a vehicle to explore how disclosure accessibility can support enforcement activity. I first provide institutional background on the setting and then summarize previous work on disclosure and corruption.

In the U.S., most public corruption cases are handled by federal enforcement agencies. This includes alleged corruption by public officials working at the state and local government level.[13] Federal investigators (e.g., FBI) and prosecutors from U.S. Attorney Offices (USAO) work together to prosecute public corruption cases on behalf of the DOJ. Investigative agencies learn about potential corruption through leads driven by internal inquiries or external monitors (i.e., whistleblowers, media outlets, etc.) Based on these tips, investigators conduct investigations to determine whether the case has the potential to be successfully prosecuted in court. Once the investigative agency decides to move forward with the case, it will issue a referral to the USAO in its respective federal district. If the referral offers a promising path to prosecution, the USAO will file and prosecute the case. State governments serve as custodians for many public records, like

[12] Unlike at the federal level (18 USC 1001), intentional misreporting on state PFD is rarely a criminal offense. However, as this paper demonstrates, PFD still play an important role in corruption cases at the state and local level.
[13] Crider and Milyo 2013 estimate that up to 94 percent of public corruption cases from 1986 to 2014 were ultimately handled by federal rather than state and local prosecutors (130). Not only are most public corruption cases handled by federal prosecutors, most federal corruption cases originate from referrals made by federal investigators rather than state or local authorities. Based on TRAC data from 1986 to 2017, the FBI originated approximately 75 percent of state corruption cases, 76 percent of local corruption cases, and 28 percent of federal corruption cases (by comparison, state and local authorities originated roughly 5 percent, 4 percent, and 1 percent of state, local, and federal corruption cases respectively).

PFD, which can be useful to enforcement agents. This paper explores whether publishing PFD for state and local filers online impacts case referral and prosecution rates by federal enforcement agents.

Previous accounting scholars have used a variety of settings to study how the medium of disclosure impacts the ways in which readers react to and use disclosure information. For example, Duro, Heese, and Ormazabal 2019 find that the online release of comment letters from the SEC led to increased capital-market responses to firm financial reporting. Similarly, Christensen, Floyd, Liu, and Maffett 2017 find that secondary disclosure of mine safety records in mining firms' financial disclosures decreases real mine-related safety issues. In two separate but related studies, Blankespoor 2019 and Blankespoor, deHaan, and Zhu 2018 find that increased digital salience of firm-level information (through XBRL disclosure tagging and robo-journalism) can enhance the dissemination of firm information in capital markets. Through this work, researchers have documented the existence of "disclosure processing costs" which arise when readers invest effort into extracting information from disclosures – even when disclosures are publicly available.

I seek to broaden the existing scholarship on disclosure processing costs by considering the enforcement effects of reducing such costs for public officials' PFD. Public corruption is a threat to governments and markets around the world (Shleifer and Vishny 1993). Previous studies document a long history of firms leveraging political relationships for economic benefits (Mehta, Srinivasan, and Zhao 2019, Tahoun and Vasvari 2017, Faccio 2006, Aobdia, Koester, and Petacci 2019, Goldman, Rocholl, and So 2013). Conflict disclosures such as personal financial disclosures offer regulators a tool to monitor official misconduct. How might PFD accessibility support enforcement agents in their role to detect and prosecute public corruption?

Research specifically on official financial disclosures as an anti-corruption tool remain scant and generalized in nature. Djankov, La Porta, Lopez-de-Silanes, and Schleifer 2010 find that countries where parliament members' financial disclosures are public tend to have higher government quality and lower corruption. Wihbey and Beudet 2016 develop a disclosure measurement score based on state governors' 2015 PFD, but do not find significant correlations between their measure and public corruption. Szakonyi 2018 finds that the adoption of PFD requirements in Russian cities is associated with fewer incumbents seeking re-election. Separately, institutions such as the World Bank have also published practitioner guides for governments implementing income and asset disclosure (IAD) systems (Habershon and Trapnell, 2012).

Perhaps the most closely related paper to the present work is Cordis and Warren 2014, who develop their own index on state FOIA laws and find that corruption decreases after states move from weak to strong-FOIA regimes. However, this study differs from Cordis and Warren in several important ways. First, the research questions are distinct. Cordis and Warren ask whether increased governmental transparency will lead to reduced corruption among state and local officials. In contrast, I ask how the ways in which PFD are made publicly available (i.e., online PFD) impacts enforcement agents' investigative process which includes making and prosecuting corruption referrals. Stronger FOIA may enable readers to access more information that supports decision-making, but *how* this information is offered may have important implications for the readers' ability to extract and process this information. Establishing that online PFD supports agents' investigative process is again nonobvious – indeed, online PFD may be redundant if investigators can already access disclosures through established request-based systems (e.g., FOIA, subpoena). Relatedly, the proposed mechanisms through which transparency supports enforcement differ across the two studies. In the PFD setting, access to disclosures is driven by the supply side (state)

by making disclosures accessible online to the public. In the FOIA setting, access to disclosures is driven instead by the demand side (public) who must initiate or request specific records of which they were already aware.[14]

Finally, I believe this paper is also the first to use field evidence to document potential mechanisms linking disclosure transparency (via online PFD) to changes in alleged corruption. While previous papers use archival data to suggest potential mechanisms (e.g., that the media helps propagate information from disclosures), this study supports such mechanisms – and proposes new ones – by engaging directly with journalists and federal prosecutors.

III. HYPOTHESIS DEVELOPMENT

To develop hypotheses around how online PFD may help investigators evaluate corruption leads for prosecution, I propose the following stylized model. I provide intuition and predictions in this section, with the full model available in Appendix A.

In practice, federal investigators and prosecutors collaborate to bring public corruption cases for the DOJ. Investigators filter through case leads and refer certain leads to prosecutors for prosecution. When deciding whether or not to make a referral, investigators weigh the potential benefit from referring leads which successfully result in prosecution—i.e., high-quality leads—against the potential cost from referring leads which prosecutors discard—i.e., low-quality leads. I propose that investigators may seek additional information about the quality of a lead via PFD,

[14] As a result, the identification strategies and outcome variables between these papers are also different. Cordis and Warren build a state-level index for FOIA strength based on four measures (states' liability for violating FOIA laws, time requirements for responding to FOIA requests, allowable fees to charge for document access, and official discretion to deny requests) (11). These components do not include a measure for the medium of disclosure, possibly because their sample period runs much earlier from 1986 to 2009. (As I find in Appendix B, the many states did not begin offering online PFD until the mid-2000s.) Lastly, Cordis and Warren use corruption convictions data to make claims about changes in real corrupt activity as well as the likelihood of detection. In comparison, I examine state office-level choices to make PFD available in another format (online) and link this to changes in enforcement agents' referral and prosecution decisions which occur before the court system determines the cases' final outcomes.

which represents the probability that prosecutors will prosecute the lead after referral. PFD can thus inform the investigator's referral decision.

I consider two alternative information regimes by which a social planner can make PFD available to investigators. First, the social planner can decide to make PFD *publicly observable* online ("online disclosure") which imposes an official privacy cost on society. This privacy cost is nontrivial. In my interviews with federal prosecutors, the top concern with online PFD was the threat to official privacy (Appendix D, A-Q4). Second, the social planner can make PFD *privately observable* to the investigator through a formal request or subpoena ("request disclosure"). However, request disclosure imposes investigation frictions which reduce the probability that a given lead will result in prosecution. One example of such frictions are tipoff costs, whereby investigators compromise the secrecy of their investigation by formally requesting PFD from the government. Tipping off an official that they are being investigated can undermine an investigation by allowing that official to try to thwart the investigation (i.e., hide or obfuscate evidence, hire a lawyer, destroy documents, etc.) This concern arose in several interviews with federal prosecutors (Appendix D, A-Q4). Another example of investigation frictions under request disclosure are evidentiary costs, whereby investigators forfeit additional support of the public and media in generating quality referrals. Put differently, these costs represent the forgone benefits to investigators of having online PFD accessible to the public and media for developing leads and collecting evidence. Prosecutors report that PFD are most helpful for connecting pieces of evidence to build a convincing case for prosecution, especially early in an investigation (Appendix D, A-Q2). Furthermore, prosecutors suggest that online PFD would most likely support corruption enforcement by facilitating the media and public's access to PFD, especially since prosecutors are

resource-constrained (Appendix D, A-Q4). These investigation frictions may reduce a referral's attractiveness for prosecution under request disclosure.

I begin by observing that which regime is socially optimal will depend on the relative magnitude of investigation frictions incurred by investigators and privacy costs borne by society. More precisely, I anticipate that online disclosure is likely to be socially optimal when investigation frictions are relatively high and privacy costs are relatively low. Given these features, how might investigators' referral behavior differ between request and online disclosure regimes?

First, under request disclosure, investigation frictions incurred by requesting PFD *lower* a lead's probability of prosecution and therefore *raise* the threshold for the quality of leads that investigators will want to refer for prosecution. Because the threshold for referring leads is lower under the online disclosure regime than the request disclosure regime, referral volume ought to be higher under online disclosure than request disclosure (**H1**). Second, leads referred under online disclosure ought to have a higher probability of prosecution than those referred under the request disclosure regime (**H2**). Why should this occur? Investigators may refer more leads under online disclosure than request disclosure, but it is not obvious that—conditional on referral—these leads will have a higher probability of prosecution. Under request disclosure, investigators refer fewer and higher quality leads, however they also incur investigation frictions which lower the overall probability of prosecution. Although the quality of leads at the optimal referral threshold is higher under request disclosure than under online disclosure, this does not fully compensate for the investigation frictions.[15] Thus, referrals under online disclosure are expected to have a higher probability of prosecution compared to referrals under request disclosure.

[15] Consider the tradeoffs of the investigator under request disclosure. Investigation frictions push the investigator's referral threshold upward, so they become pickier about which leads to refer. However, as the threshold for referral increases, investigators refer fewer cases and thus realize fewer benefits from referring high-quality leads. The investigator must balance their "pickiness" with their desire to refer high-quality leads. In this model, the tradeoff

Finally, and separately from the model, I introduce H3 to test whether the main effects from H1 and H2 differ based on the strength of external or internal monitoring. H3 comprises two parts (**H3a** and **H3b**). H3a predicts that online PFD serves as a complement to external monitoring (proxied by local newspaper circulation). This prediction is motivated by prior accounting research suggesting that local media serves as a powerful information intermediary which can support the monitoring of firms and governments (Gao, Lee, and Murphy 2020). H3b is a two-sided hypothesis exploring whether online PFD serves as a complement or substitute for strong internal monitoring of public officials (proxied by state ethics commission budget per public employee). On one hand, states which invest in ethics oversight may be more likely to have stronger systems for PFD administration, content, and monitoring. They also may be more capable of supporting federal investigations by sharing useful information. In such settings, online PFD may complement existing state investments in ethics oversight. On the other hand, online PFD could substitute for internal monitoring in settings where federal investigators have limited resources for learning about officials' finances.

Through its empirical tests, this paper addresses how referral and prosecutorial behavior changes in response to states shifting from request to online disclosure regimes by making PFD available online. However, this paper is unable to resolve the question of whether online PFD is socially optimal. Such determination would require quantification and testing of official privacy costs and investigation frictions, which is beyond the scope of the current work.

IV. DATA AND METHODOLOGY

To test these hypotheses empirically, I collect data on the treatment variable (online PFD),

leads the investigator to make referrals with lower expected prosecution probability under request disclosure than under online disclosure. See Appendix A.

outcome variables (alleged corruption), and proxies for external and internal monitoring (media coverage and ethics budget). While treatment is defined at the state level (e.g., states adopt online PFD for local and/or state filers), analyses are performed at the federal district level. There are 94 federal districts representing all U.S. states and territories, with at least one district in each state (DOJ 2017b). The unit of observation for all analyses are federal district-years.

Defining the Treatment: Online PFD

I begin by constructing an original dataset of state-level PFD policies, including which states offer online PFD and the earliest dates when online PFD became available. I obtain an initial listing of state code sections on financial disclosure requirements from the National Council of State Legislators (NCSL 2019). I read state codes available in Westlaw and NexisUni to verify code sections pertaining to state and/or local officials and record the code's earliest citation date. I categorize states as having PFD requirements for state officials and local officials using the following decision rules. I define "state officials" as any official employed by and/or servicing a state agency. This includes positions such as state legislator, state judge, governor and executive branch official, and state employee. "Local officials" refer to any official employed by and/or servicing a sub-geography of the state. This includes municipal officials and employees, district or county officials and employees including local judges.[16]

Next, I identify which states make PFD available online and the earliest date when PFD was publicly accessible online using state websites and the Wayback Machine Internet Archive.[17] I also confirm whether this date differed for disclosures related to state officials and/or local officials. See Appendix B for PFD web-links, classification, and treatment dates.

[16] For details on the classification process, see Appendix C. A complete listing of official positions covered and PFD code sections is available upon request.

[17] If a representative from the state ethics commission offered an online disclosure date which differed from the Wayback Machine date, I deferred to the date offered by the ethics commission.

Finally, I conduct field interviews of state offices which offer online PFD to understand the motivations behind online PFD adoption. A key identification concern in this paper is that online PFD may be adopted in conjunction with other anti-corruption policies, or in response to recent corruption scandals.[18] This raises endogeneity concerns for identifying the effect of a specific anti-corruption policy on alleged corruption outcomes. To address this issue, I classify states into "efficiency-motivated adopters" (i.e., states which adopted online PFD to upgrade or modernize their workflow) and "corruption-motivated adopters" (i.e., states which adopted online PFD as part of a larger anti-corruption program). This methodology follows the narrative approach employed in recent tax literature for disentangling state policies (i.e., tax changes) motivated by "plausibly exogenous" long-term versus "plausibly endogenous" short-term economic concerns (Romer and Romer 2010, Giroud and Rauh 2019).[19] This also responds to calls for researchers to incorporate field data into empirical archival research, especially when researchers must gauge the underlying motivations behind policy changes (Soltes 2014).

In this spirit, I interviewed state offices responsible for online PFD to better understand the history and design of states' online PFD systems.[20] I spoke with 33 offices, representing 94 percent of the states which made PFD available online as of 2017. Appendix C summarizes the results in an aggregated and anonymized format to protect participant confidentiality. I classify "efficiency-motivated" PFD adopters as states whose offices adopted online PFD due to efficiency rather than corruption motivations. Efficiency motivation examples include: convenience and modernization,

[18] This issue is common to corruption studies, see Cordis and Warren 2014 and Crider and Milyo 2013 for examples.
[19] Specifically, Giroud and Rauh 2019 gather motivations for tax changes from news articles surrounding tax changes and classify these motivations into endogenous versus exogenous categories. An example of an "endogenous" tax change would be motivated by "offsetting a change in government spending" and an "exogenous" tax change would be motivated by "achieving some long-run goal" (Giroud and Rauh 2019, 1285).
[20] In most states, this office was the state ethics commission, however in some cases this office was a sub-division of the secretary of state's office. Each office was contacted using publicly available contact information.

desire to model transparency, and cost savings. Corruption motivations include: comprehensive ethics reform, wide-ranging amendment to existing laws, or recent corruption scandals.[21]

Table 1 summarizes the final classification, and Appendix C offers details on the classification procedure. I define treated federal districts as districts in states with PFD requirements which adopted online PFD for efficiency-motivated reasons. Put differently, treated districts are districts which had pre-existing PFD requirements when the state decided—for reasons plausibly unrelated to corruption concerns or anti-corruption legislation—to make these disclosures available to the public online. The treatment event is the year in which the district's state made disclosures available online.[22]

Defining the Outcome: Alleged Corruption

This paper considers public corruption to be corrupt acts performed by public officials. The aggregated TRAC public corruption data measures corruption charges for DOJ-defined programs for "state corruption" and "local corruption" from 1986 to 2017.[23] The detailed TRAC referral-level data, based on USAO administrative records, provide a strong basis to explore the impacts of online PFD across multiple stages of this process. The data show, at the federal district and DOJ corruption program level, the full population of corruption referrals from investigative agencies

[21] In cases where I was unable to contact the state office or the interview produced an ambiguous response, I consulted historical office publications (available on office websites), legislative history notes (Westlaw), and historical office websites (WaybackMachine) to assist with classification.

[22] I perform a validity check on my classification by conducting a newspaper search for media mentions of public corruption within three years leading up to online PFD adoption. I plot the trends of media mentions across time as a proxy for the level of detected public corruption within the state. To execute the search, I use Factiva and NexisUni to search national and local newspapers for the term "public" within ten words of terms related to "bribery," "conspiracy," "embezzlement," "fraud," "kickbacks," "misappropriation," "corruption," and "scandal" and within roughly 100 words of the state name (following Cordis and Milyo 2016). The resulting media coverage plot for the main treatment sample (local adopters) is available in Figure 1. A newspaper listing is available upon request.

[23] Over this period, the three most frequent charges for both state and local corruption were: "theft or bribery concerning programs receiving federal funds" (18 USC 666), Hobbs Act (18 USC 1951), and "mail fraud" (18 USC 1341). (The Hobbs Act is also known as the "under the color of official right" provision of the federal extortion statute (DiBiagio 2020). It is one of the three main legal provisions supporting public corruption cases.) Together, these three charges accounted for about half (53 percent) of state and local corruption cases in the sample.

and whether referrals resulted in prosecution or disposal. These data span 2004 to 2017 and serve as the basis for my measures of alleged corruption. I consider two outcome variables which may be directly impacted by online PFD: (1) referral rate (volume of detected referrals per ten thousand government employees) and (2) prosecution rate (proportion of referrals selected for prosecution).[24]

Defining the Monitoring Environment: Internal and External PFD Oversight

To proxy for internal monitoring by the state, I use the annual state ethics commission budget scaled by the number of full-time equivalent government employees. This variable is drawn from the Council on Governmental Ethics Laws (COGEL) Blue Book series which provides rich qualitative information on the resources, responsibilities, and financial disclosure practices of each ethics commission from 2008 to 2018. I use the commission's budget per employee as an umbrella measure to capture the level of states' investment in ethics oversight. I posit that states which allocate more resources this office are likely to have stronger systems for PFD administration, content, and monitoring.[25] To proxy for external monitoring, I use local news media circulation from the Editor and Publisher Newspaper Databook. These data provide raw counts of newspaper circulation at the city-year level.[26] I aggregate this figure up to newspaper circulation at the federal district-year level, and scale by the population in each given district-year.

[24] Regarding completeness, the TRAC referrals data consist of all records available from USAO offices from 2004 to 2017. Since administrative records include referrals that are in process and expired as of 2004, the earliest date of referral receipt is December 1999 and the earliest date of referral disposal is October 2002. To alleviate concerns about incomplete records pre-2004, I begin my dataset in 2004. The main tests employ a three-year difference-in-differences model. I require that treated districts adopt online PFD between 2007 and 2014 so that the three years prior to treatment, the treatment year, and three years post-treatment fall within the sample period (see Table 1). For untreated districts (no online PFD adoption), I restrict all district-years to be between 2004 and 2017 inclusive.

[25] Since the data sample begins in 2004, COGEL respondent values from 2008 are carried back to the beginning of the sample. States which did not participate in the COGEL survey are excluded from sub-sample analyses based on COGEL survey variables.

[26] These data range from 2004-2016, with values carried forward for the final sample year.

Additional Control Variables

Following prior literature, I include control variables for economic conditions (income per capita, unemployment rate, legal expenditures per capita, high school education attainment rate, and internet access rate) drawn from the U.S. Census, Bureau of Economic Analysis, and National Telecommunications and Information Administration. These variables attempt to capture the level of affluence and economic prosperity in a given federal district, as well as the amount the state has chosen to invest in law enforcement and education (Glaeser and Saks 2006, Cordis and Warren 2014). To control for political factors associated with e-government adoption, I also include indicators for the political party in control of the state legislature (McNeal, Tolbert, Mossberger, and Dotterweich 2003, McNeal and Hale 2010).

V. EMPIRICAL MODEL

To test the impact of online PFD on corruption, I estimate the generalized difference-in-differences model given below in Equation 1. States adopted the treatment (online PFD) in a staggered fashion, meaning that not all states received treatment at the same point in time. Staggered adoption helps mitigate concerns that results are driven by concurrent institutional or economic changes which are unrelated to online PFD adoption.

$$Y_{i,s,l,t} = \alpha + \beta * online\_PFD\_x\_post_{s,l,t} + \theta * Ext_{i,s,t} + \delta * Int_{s,t} + \lambda * X_{i,s,t} + \gamma_t + \rho_{i,s} + \varepsilon_{i,s,l,t} \quad \text{(Eq. 1)}$$

In Equation 1, *i* indexes the federal districts located within state *s* at year *t*. The dependent variable $Y_{i,l,t}$ is one of the public corruption outcome measures in district *i*, state *s*, year *t*, for the DOJ public corruption program *l*. The DOJ classifies public corruption referrals into categories for "federal," "state," and "local" corruption. The paper considers two district-level outcome measures: (1) volume of corruption referrals scaled by full-time equivalent state and local government

employees (tens of thousands) ("referral_rate") and (2) proportion of referrals selected for prosecution ("prosecution_rate"). All variable descriptions are summarized in Table 2.

The main treatment variable of interest is online_PFD_x_post$_{s,l,t}$ which equals one from the year after state *s* has made PFD available online for officials in program level *l*. Put differently, if state *s* adopts online PFD for program level *l* in year *t*, then the treatment indicator online_PFD_x_post$_{s,l,t}$ equals one in the three years after online PFD adoption (t+1 to t+3) and zero in the preceding years (t-3 to t). This coding is illustrated in tabular format in Figure 2.

Ext$_{i,s,t}$ represents the level of external monitoring of public officials at the federal district level. The proxy measure for external monitoring is the average daily newspaper circulation per capita ("news_circ") in district *i*, state *s* and year *t*. Int$_{s,t}$ represents the level of state-provided internal monitoring of public officials, and is proxied by the state ethics commission budget scaled by government employees in state *i* and year *t* ("ethics_budget"). $X_{i,s,t}$ consists of a vector of economic and political control variables defined at the federal district level (income per capita, unemployment rate) and state level (legal expenditures, educational attainment rate, internet access rate, state legislature majority party). I include fixed effects for all years γ_t and districts $\rho_{i,s}$. Standard errors are clustered at the state level.[27]

VI. RESULTS

I begin with a full sample of treated federal districts and untreated federal districts. Treated districts belong to efficiency-motivated online PFD adopter states, and untreated districts belong to states which did not adopt online PFD over the sample period (2004-2017). I exclude districts

[27] I cluster at the level of treatment (state) to avoid error correlation across districts within the same state (Bertrand, Duflo, and Mullainathan 2004).

from states with corruption-motivated adoption to avoid misattributing corruption outcomes to online PFD as opposed to another concurrent anti-corruption policy.

I observe that, while all adopters made online PFD available for state official filers, a subset of adopters also offered online PFD for local official filers. I refer to the former group as the "state adopter group" and the latter the "local adopter group." Recall that the TRAC data break out alleged corruption measures across federal, state, and local corruption programs. This allows me to distinguish between the impact of online PFD for state filers on state corruption ("state adopter group"), and the impact for local filers on local corruption ("local adopter group") (see Table 1).

Between these groups, I expect the effects of online PFD to be more pronounced for local filers. Recall, the PFD studied in this paper are made available by the state as opposed to local authorities. Therefore, I hypothesize that state officials are more likely to adapt PFD to suit their needs (i.e., obscure unfavorable financial conflicts). Local officials would likely not have this ability. Thus, the effects of online PFD may be stronger among local officials.

Local Adopter Group

I begin with the local adopter group, the primary treatment group of interest, to assess the effects of local online PFD on local corruption. I apply coarsened exact matching (CEM) supplemented by hand-matching to generate a sample of treated and control districts for analysis. The purpose of matching in small samples is to improve balance along key covariates and thereby reduce bias in estimates of the treatment effect (Blackwell, Iacus, King, and Porro 2020). Though small overall, the sample of local online PFD adopters features ample potential controls (n=58) to match to treated districts (n=12). I define treated districts as belonging to efficiency-motivated states which adopted local online PFD. Control districts belong to states which either: (1) never adopted local online PFD or (2) adopted local online PFD more than three years after the latest treated district.

To perform the match, CEM temporarily coarsens continuous variables for control units and assigns them to strata featuring common values. One feature of this algorithm is that it prunes units from any stratum that does not contain at least one treated and control unit. To avoid pruning treated districts from the small treatment sample, I supplement CEM-generated matches with hand-matches. In total, I match on three variables (median income per capita, political party, and region) for control selection in the CEM-generated sample and two variables (median income per capita and political party) for the supplemental hand-matches.[28]

CEM, like other exact matching techniques, imposes dimensionality constraints which limit the researcher's ability to match treated units to controls based on precise pre-treatment covariate values. To address this issue, I identify key matching covariates based on prior literature. In particular, studies suggest that state wealth and political party leadership are associated with public corruption and e-government adoption. I select income per capita as my proxy measure for district wealth because it is likely to correlate with other important economic indicators linked to corruption such as educational attainment or unemployment (Glaeser and Saks 2006, Tolbert, Mossberger, and McNeal 2008). To capture political and cultural attitudes towards e-government and public corruption, I also select controls with the same political majority in the state legislature and geographic region of the U.S.[29] The results of this matching procedure and summary statistics for the matched sample are available in Table 3 Panels A and B, respectively.[30]

[28] The results are robust to using alternate matching criteria (e.g., matching based on income per capita and census region) for selecting the supplemental hand-matches.

[29] Through my interviews, I learn that there are regional differences both in the types of corruption cases observed and how corruption cases are classified by USAO offices. To capture these commonalities, I select controls from within the same census region which divides the country into four quadrants. Out of the final matched sample in Table 3, 6 out of 31 controls share a land border their matched treated districts.

[30] In untabulated results, I find that the referral rate result retains its magnitude, sign, and significance after applying entropy balancing on the full set of sample district years as opposed to the CEM and hand-matched sample. The prosecution rate result retains the same sign but loses magnitude and significance in the entropy-balanced sample.

I estimate Equation (1) in the matched sample and find that local online PFD is associated with increased referral rates, in support of **H1**. Table 4 reports results from multiple estimations of Equation (1) with sequentially robust specifications. Column (1) estimates a basic differences-in-differences model absent fixed effects or controls. The estimate of the treatment effect—coefficient on "online_PFD_x_post"—is significant at the 5 percent level. In addition, the coefficients on "online_PFD" and "post" are insignificant which is meaningful in this context. First, the insignificance of "post" indicates there were no significant changes in referral rates in the control group between the pre- and post-treatment periods. This alleviates concerns that changes in control districts may be driving the treatment effect. Second, the insignificance of "online_PFD" implies a lack of baseline differences in referral rates between treated and control districts in the pre-treatment period. This helps corroborate the success of the matching process in selecting matches with similar pre-treatment characteristics. Collectively, these results imply that the treatment effect is driven by referral rate changes within treated districts in the post-treatment period.

The magnitude of the effect in Column (1) indicates that local online PFD is associated with increases in referral volume by .09 per ten-thousand government employees. To contextualize this finding, this effect translates into an increase of 4.1 referrals for the median sample district. Given that the sample median number of referrals per year is 3, an additional 4.1 referrals from online PFD represents a roughly twofold increase in referral volume.

In Column (2), I replace "online_PFD" and "post" with federal district and year fixed effects. The treatment effect remains stable and significant at 5 percent. The overall explanatory power of the model also increases as adjusted R2 rises from .00 to .52. The final and most robust specification in Column (3) includes fixed effects and the full set of monitoring, economic, and

political controls. The magnitude of the final treatment effect rises to .10 (significant at 5 percent) and the model's adjusted R2 increases again to .53. For the median sample district-year, column (3) implies that local online PFD is associated with an increase in referral volume by 4.7 per ten thousand government employees. This translates into an increase in referral volume from 3 to 7.7 referrals per year.

Next, I examine whether local online PFD changes the proportion of referrals selected for prosecution (**H2**). The results, summarized in Table 5, suggest that online PFD is associated with increased prosecution rates. Table 5 Columns (1), (2), and (3) similarly report a basic difference-in-differences specification with sequentially added fixed effects and controls. In Column (1), the coefficients on "online_PFD" and "post" are insignificant, again lending support that the treatment effect is driven by changes within the post-adoption treatment group. However, the overall predictive power of the model remains low, as evidenced by the negative adjusted R2. As with Table 4, I do not rely on this basic specification to interpret the treatment effect, but rather use Column (1) to illustrate how the estimated treatment effect emerges significant and stable as the model improves upon adding fixed effects and controls (Columns 2, 3). The treatment effect estimate rises in significance and magnitude across all specifications, from .11 in Column (1) to .18 in Column (3). The model's adjusted R2 also grows across all specifications. The final estimate in Column (3) is significant at the 5 percent level and implies that local online PFD raises prosecution rate for the median district-year from 33 percent to 51 percent.

To illustrate this effect in real terms, consider the case of Massachusetts which recently made its PFD available online in 2017. Prior to 2017, the USAO in Massachusetts received a median of 11 referrals per year and prosecuted 25 percent of these referrals. The implied effects

of increased referral rates from Table 4 and prosecution rates from Table 5 suggest that local online PFD would raise the annual number of prosecuted referrals in Massachusetts from 3 to 7.

I then explore whether the treatment effects on referral rates (**H1**) and prosecution rates (**H2**) are concentrated in districts with strong external and/or internal monitoring (**H3a** and **H3b**). I begin by partitioning treated districts into two groups according to their respective levels of external and internal monitoring. For external monitoring, I compare local news circulation levels among treated districts in the pre-treatment year. Treated districts that fall above/below the median are assigned to the high/low external monitoring group, along with their matched control districts. Likewise, treated districts that fall above/below the median state ethics budget per employee are assigned to the high/low internal monitoring group, along with their matched controls.

Table 6 summarizes the results. I find that the treatment effect on prosecution rates is concentrated in districts with strong internal monitoring (Table 6, Panel B). This implies that state investments in ethics oversight may supplement online PFD in supporting anti-corruption enforcement. Conversely, the positive effect of local online PFD on referral rates appears somewhat concentrated in treated districts with high external monitoring (Table 6, Panel A). The magnitude of the treatment coefficient is nearly twice as large under high versus low external monitoring, and its t-statistic falls just below significance at the 5 percent level (Column (1), p(t) = .054). This finding is consistent with my field interviews with local news journalists who describe regularly consulting PFD for government reporting and accessing PFD online if possible (Appendix D, B-Q2, B-Q4). Federal prosecutors also described enhanced media access as one of the potential enforcement benefits of online PFD (Appendix D, A-Q4).

While these subsample tests suggest where the main effects may be concentrated, they do not indicate that significant differences exist between subgroups (i.e., between high-versus-low

internal monitoring districts and high-versus-low external monitoring districts). Overall, there is low power in the subsample tests and I do not detect significant differences across the subgroups. In untabulated tests, I attempt to gain power by observing these effects in aggregate – comparing districts with either high internal or external monitoring to districts without high monitoring. This produces mixed results. The coefficient on high monitoring districts with respect to referral rates is positive, but not significant. However, I do find that districts in high monitoring groups experience higher prosecution rates (significant at the 1 percent level). While these analyses provide some evidence that increased monitoring complements online PFD, the findings with respect to H3 are not conclusive.

State Adopter Group

Next, I estimate Equation (1) for the state adopter group, assessing the impact of state online PFD on corruption outcomes. These results are not significant.[31,32] This may be due to overall low levels of alleged corruption at the state level (for example, across the full sample the total number of state corruption referrals is 2,646 compared to 7,524 for local referrals). However, this may also be driven by my initial hypothesis that state officials may use their ability to influence PFD rules to obscure financial conflicts or avoid incriminating disclosures. Thus, whether the PFD are available via request or online would likely not impact corruption outcomes for state officials. The overall pattern of results suggests that online PFD may be more useful for anti-corruption when the group making PFD disclosures (i.e., local officials) are not also responsible for setting PFD rules (i.e., state officials). Several examples raised during field interviews of prosecutors and

[31] I also re-estimate the model using combined measures of state and local corruption. The results remain insignificant. Note that in the state adopter sample, there is a limited pool of potential control districts (n=26) to match to treated districts (n=13). Thus I use the full, unmatched sample for tests of state online PFD adoption.

[32] The results remain insignificant if I restrict the treatment states to only include those which also required local PFD. This suggests that the main results for local corruption are not driven by other factors related to the particular states which offer local online PFD.

journalists point in this direction. For instance, prior to his conviction, Sheldon Silver actively "sought to prevent, and in fact prevented, the disclosure of information about his outside income" to an ethics probe led by Governor Cuomo over the course of two years (DOJ 2015, 6). In 2016, Georgia lawmakers sought to remove the requirement that public officials report payments from the state on their personal financial disclosure forms. The adjustment came after the Atlanta Journal-Constitution reported that the House Majority Leader Jon Burns failed to disclose state payments to his private businesses, and was passed after midnight on the final evening of the legislative session. At the time, the State Ethics Commission was reviewing Burns' PFD for indications of impropriety (Godwin 2016). Both cases suggest that state officials wield influence over PFD rules and monitoring, which may not extend to local officials subject to state reporting requirements.

Additional Tests

Returning to the main results on local corruption, another outcome of interest is whether online PFD is associated with changes in sentencing outcomes. Overall, I do not find significant effects of online PFD on the likelihood of punishment conditional on prosecution. However this result must be approached with caution. First, though almost every district-year contains corruption referrals, actual corruption prosecutions are much rarer. This places limitations on sample size for tests involving the outcomes of prosecuted cases. Second, my measure of "punishment" only includes specific sanctions defined within the corruption case data (i.e., prison, probation, or fines). Yet there may be many other sanctions on public officials which result from public prosecution (i.e., reputational costs) which are difficult to quantify. There may also be factors associated with sentencing outcomes (i.e., judge or case characteristics) which fall beyond the modelling scope of this paper. The field interviews suggest online PFD appears plays a stronger

role in the early stages of an investigation—helping investigators and information intermediaries (media, ethics monitors) detect and refer corruption leads which are attractive for prosecution (Appendix D). Thus, this paper focuses on the impact of online PFD on the investigative and prosecutorial processes within anti-corruption enforcement, as opposed to sentencing outcomes.

VII. ROBUSTNESS

I conduct four robustness tests for the main results presented in Tables 4 and 5. First, recent work by Baker, Larcker, and Wang (2021) and Sun and Abraham (2020) raise concerns that staggered difference-in-differences designs may be biased in the presence of heterogeneous treatment effects. One important implication of these findings is that pre-trend estimates we would typically assess using this framework may also be invalid. To address these concerns, I follow Baker, Larcker, and Wang (2021) and apply a stacked regression design to test the robustness of the main results (Table 7, Panel A) and assess pre-treatment trends (Table 7, Panels B and C). The stacked regression is identical to the standard difference-in-differences regression except district and year fixed effects are replaced with district-dataset and year-dataset indicators. Here, each "dataset" refers to an event-specific dataset of treated and matched control districts aligned in relative time (20). I use the stacked regression to estimate the main results from Table 4 Column (3) and Table 5 Column (3), as well as to plot dynamic effects by eliminating t, the period before online PFD treatment, as the baseline period. In Table 7, I find that the main results are not affected by using stacked regression (Panel A). This suggests that the paper's main results are not driven by comparisons of early versus late-treated states in the presence of treatment effect heterogeneity. I also find that none of the pre-treatment indicator variables are significant for either the referral rate (Panel B) or prosecution rate results (Panel C), offering reassurance regarding the parallel-trends assumption.

Second, I perform a falsification test using placebo outcome variables following Cordis and Warren 2014. The intuition behind this approach is that changes in state-level rules and procedures for PFD should not impact federal officials. Online PFD should only generate changes in alleged corruption by those officials subject to the online PFD treatment. In Table 8 Panel A, I repeat the main results using dependent variables which capture public corruption classified as "federal" by DOJ program category. As predicted, I find no significant associations between local online PFD and any dependent variables based on federal public corruption.

Third, I perform an additional placebo test by randomly selecting a placebo treatment year for each treated state from the pre-treatment period. Table 8 Panel B replicates the results from Tables 4 and 5 using the same treated and matched control districts, altering only the treatment year. I do not find significant effects when the true treatment year is replaced with a placebo.

Fourth and finally, I use Oster's 2017 method to test for the impact of omitted variable bias on my results. I compute Oster's delta statistic using an R^2_{max} of 1.3 times the R^2s of the original controlled regressions, resulting in a delta of -3.4 for the referral rate result (Table 4, Column 3) and 57.9 for the prosecution rate result (Table 5, Column 3). The positive delta for the prosecution rate result implies that unobserved variables must be more important (in this case, over 50 times more important) than observed variables to produce an insignificant result (Oster 2017, 9). This suggests the prosecution rate result is unlikely to be driven by omitted variable bias. While negative deltas cannot be used to bound the magnitude of omitted variable bias, the result indicates that the treatment coefficients increase in magnitude when more controls are included. Since adding controls strengthens the coefficients of interest, negative deltas also suggest that the referral rate result is also unlikely to be driven by omitted variable bias (Flynn 2017, Graham, Miller, and Strom 2017, Glewwe, Ross, and Wydick 2018).

VIII. MECHANISM AND DISCUSSION

Though empirical analyses suggest that local online PFD supports the detection and prosecution of public corruption, the precise mechanism behind these effects remains unclear. To better understand the relationship between online PFD and anti-corruption enforcement, I interviewed 93 federal prosecutors, investigators, and journalists involved in public corruption coverage over the past two decades. In total, I reached out to 826 prosecutors involved in state and local public corruption cases from 2004 to 2017 and interviewed 47, for an overall response rate of 6 percent (effective response rate 10 percent). I also contacted 255 local newspapers representing all 51 states and received 41 responses, for an overall response rate of 16 percent (effective response rate 18 percent). Response rates of 10-18 percent compare favorably with other survey response rates in the literature, especially considering the potentially sensitive nature of the topic. Prior research seeking information from managers on firm practices, for example, typically have response rates ranging from 5 percent to 15 percent.[33]

The purpose of these interviews was to understand how PFD—and, in particular, online PFD—support corruption investigation and prosecution. From the prosecutor interviews, I learned that overall prosecutors view PFD as having both investigative and evidentiary value.[34] On their own, PFD often do not "make or break" a public corruption case—however PFD are a useful piece of the investigative puzzle. PFD are generally consulted at the beginning to middle of an investigation to help create a baseline for an officials' financial profile. When asked how PFD were directly useful, the most common reasons cited by prosecutors included: provides leads to

[33] For examples of response rates from accounting surveys, see Brown, Call, Clement, and Sharp 2019 (14.5 percent) and Dichev et al. 2013 (5.4 percent).

[34] The majority of respondents (n=32) reported that PFD were "very useful" for supporting corruption investigation, while several found them "somewhat" supportive (n=10) and few "not at all" supportive (n=3) (Appendix D, A-Q1).

other evidence (38 percent), helps connect official to third-party organizations (26 percent), and commits official to financial statement at a specific point in time (23 percent) (Appendix D, A-Q2). Though an investigation often begins from public tips or media stories, PFD can help prosecutors build the case for opening or furthering a criminal investigation. These disclosures are particularly useful when they reveal the nondisclosure of assets or business relationships that prosecutors have identified. This early snapshot of the officials' self-reported finances is important because prosecutors must establish probable cause or predication in order to open an investigation. Opening an investigation facilitates future data requests, including subpoenas for other potential evidence such as tax returns or bank records.

In terms of evidentiary value, PFD often support prosecution when the official has not disclosed some financial benefit they received in exchange for official services. The most commonly cited reason for this is that prosecutors can use nondisclosure to demonstrate criminal intent or consciousness of guilt (81 percent). Nondisclosures can also serve as a critical point of comparison to other financial records (i.e., bank accounts, tax returns, real estate records, etc.) (12 percent) and be useful for questioning the defendant's credibility (7 percent) (Appendix D, A-Q2). According to his indictment, this repeated omission helped establish that former Philadelphia district attorney Seth Williams "intentionally omitted reference to valuable benefits" to conceal bribery (DOJ 2017a, 19). When prosecutors identify differences between the public-facing PFD and established transactions, this can provide strong evidence of an official's *mens rea* or "consciousness of guilt."

I also find that the medium of PFD availability (online vs. request-based) matters for how prosecutors access and use disclosure information. Most prosecutors (79 percent) felt that online PFD would support the detection and prosecution of public corruption. The major reasons for this

included online PFD helping the public (33 percent) and media (26 percent) access information which could support the development of leads and evidence collection. In addition, others pointed out that online PFD allows enforcement agents to covertly access disclosures without issuing subpoenas to state agencies which could tip off the government or lead to premature disclosure about an investigation. Preventing information leakage about investigations is especially important in public corruption cases where the defendant is a political figure. Protecting covert access to information was a less-commonly cited benefit of online PFD (5 percent), but points to an important consideration for investigative strategy. In a similar vein, prosecutors remarked that online PFD can have mechanical benefits in terms of faster information access which is helpful in forming an investigative strategy (Appendix D, A-Q4). Overall, online PFD appears to offer a low-cost, high-speed, and covert mechanism for enforcement agents to get an early-stage picture of an official's self-reported financial interests. Moreover, it allows investigators and prosecutors to benefit from enhanced availability of these disclosures to the public and media.

Despite the potential benefits of online PFD, prosecutors remained uncertain if the costs to official privacy would be worth the benefits of online access. The most commonly cited drawback to online PFD was privacy concerns for officials (50 percent), especially given that prosecutors still have the subpoena option (21 percent) (Appendix D, A-Q4). This issue highlights the tension surrounding online PFD adoption, a motivating concern for this paper.

The prosecutors' suggestion that online PFD might help the public and media develop leads aligns closely with perspectives from my journalist interviews. I find that PFD are routinely used by political reporters, and online access matters to them. The most common reason for accessing PFD was routine checks (23 percent), followed by prompts from public tips (20 percent) and proposed legislation (19 percent) (Appendix D, B-Q4). The vast majority (90 percent) of

respondents could recall either themselves or their colleagues using PFD as part of coverage for local and/or state officials (Appendix D, B-Q3). All respondents were aware of these disclosures in their state and the majority access these disclosures online if possible (78 percent) (Appendix D, B-Q1). In addition, there does not appear to be a strong substitute for PFD. When asked what alternate data sources they might consult to learn about officials' personal finances, the most common response was that journalists were not sure (19 percent). This was followed by public tips (12 percent), state business registration (12 percent) and property records (10 percent). These responses suggest that online PFD are particularly useful for journalists, containing information which would be otherwise challenging to obtain.

This fieldwork connects hypotheses from the stylized model with the main conclusions from the empirical analyses. Collectively, the interviews suggest that online PFD is likely to enhance public awareness of official activity and support lead development. Online access helps enforcement agents covertly and efficiently obtain information on officials' financial backgrounds. This may enable agents to better identify cases worthy of prosecution. In addition, these effects ought to be concentrated in areas with high media concentration (external monitoring) and well-resourced ethics commissions (internal monitoring) which manage the PFD filing process and online release of the disclosures.

IX. CONCLUSION AND LIMITATIONS

Business and government have stakes in managing public corruption. In this paper, I model information-seeking by investigators under an "online disclosure" regime (which imposes official privacy costs on society) and a "request disclosure" regime (which imposes investigation frictions on investigators). As predicted, I find that online PFD for local filers is associated with increased

referral and prosecution rates. Empirical analyses affirm that online PFD supports anti-corruption enforcement by reducing disclosure acquisition costs through increased public awareness of officials' financial conflicts and enhanced disclosure access through a discrete channel. These results do not appear to extend to online PFD for state filers, suggesting the effects of online PFD may be dampened when officials can shape the rules around PFD content and accessibility.

This study contributes to prior literature on public disclosure by illustrating how the medium of online disclosure matters for supporting regulatory monitoring. While this paper does not attempt to offer a cost-benefit analysis of online PFD, it offers useful insights for policymakers. For example, policymakers might benefit from understanding how online PFD mitigates multiple forms of disclosure acquisition and integration costs (i.e., by reducing evidentiary costs and tipoff costs). They may also value field data documenting the importance of online PFD for federal prosecutors and political journalists—establishing that these constituencies regularly access and read public officials' PFD.

Lastly, while this work offers a first step towards understanding the effects of online PFD, there are many qualities of PFD left unexplored which impose limitations on the current study. Currently, the paper uses a broad proxy measure (ethics commission budget per government employee) to capture many aspects of PFD management and oversight. The paper does not measure PFD disclosure detail both across states and within states across official levels. It also does not examine PFD administered by sub-geographies of the state which may have their own online disclosure policies. This paper further focuses on PFD rather than other types of conflict disclosures (i.e., campaign finance disclosures) which may also provide fruitful settings for anti-corruption studies. Finally, this study documents how online PFD supports anti-corruption enforcement by reducing disclosure acquisition costs and enabling enforcement agents to access

disclosures efficiently. While this suggests the existence of disclosure processing costs in one enforcement context, it raises the possibility that regulators may also face processing costs for other "public" disclosures. I present this paper as an initial inquiry into the impacts of online PFD on anti-corruption enforcement, and leave consideration of these additional effects to future research.

REFERENCES

Albuquerque Journal. n.d. "Q&A: Secretary of State candidate Maggie Toulouse Oliver." Accessed December 2019. https://www.abqjournal.com/1225436/qampa-secretary-of-state-candidate-maggie-toulouse-oliver.html.

Amiram, D., Z. Bozanic, J.D. Cox, Q. Dupont, J.M. Karpoff, and R. Sloan. 2018. "Financial reporting fraud and other forms of misconduct: a multidisciplinary review of the literature." *Review of Accounting Studies* 23, no. 2: 732-783.

Aobdia, D., A. Koester, and R. Petacchi. 2019. "Political connections and government-awarded economic incentives: US state-level evidence." Available at SSRN 3127038.

Baker, A., D.F. Larcker, and C.C.Y. Wang. 2021. "How much should we trust staggered difference-in-differences estimates?" Available at SSRN 3794018.

Bertrand, M., E. Duflo, and S. Mullainathan. 2004. "How much should we trust differences-in-differences estimates?" *The Quarterly Journal of Economics* 119, no. 1: 249-275.

Blackwell, M., S. Iacus, G. King, and G. Porro. 2020. "cem: Coarsened exact matching in Stata." July 27, 2020. https://mattblackwell.org/files/stata/cem-stata.pdf.

Blankespoor, E. 2019. "The impact of information processing costs on firm disclosure choice: Evidence from the XBRL mandate." *Journal of Accounting Research* 57, no. 4: 919-967.

Blankespoor, E., E. DeHaan, and I. Marinovic. 2020. "Disclosure processing costs, investors' information choice, and equity market outcomes: A review." *Journal of Accounting and Economics* 70, no. 2-3: 1-46.

Blankespoor, E., E. DeHaan, and C. Zhu. 2018. "Capital market effects of media synthesis and dissemination: Evidence from robo-journalism." *Review of Accounting Studies* 23, no. 1: 1-36.

Brown, L.D., A.C. Call, M.B. Clement, and N.Y. Sharp. 2019. "Managing the narrative: Investor relations officers and corporate disclosure." *Journal of Accounting and Economics* 67, no. 1: 58-79.

Butler, A.W., L. Fauver, and S. Mortal. "Corruption, political connections, and municipal finance." *The Review of Financial Studies* 22, no. 7 (2009): 2873-2905.

Capitol Retail Report. 2010. "Alabama enacts ethics reform." Alabama Retail Association, last modified December 22, 2010. https://alabamaretail.org/wp-content/uploads/20101222SpecialSessionSummary.pdf.

Christensen, H.B., E. Floyd, L.Y. Liu, and M. Maffett. 2017. "The real effects of mandated information on social responsibility in financial reports: Evidence from mine-safety records." *Journal of Accounting and Economics* 64, no. 2-3: 284-304.

Cordis, A.S., and J. Milyo. 2013. “Do state campaign finance reforms reduce public corruption?” Department of Economics, University of Missouri-Columbia.

Cordis, A.S., and J. Milyo. 2016. “Measuring public corruption in the United States: Evidence from administrative records of federal prosecutions.” *Public Integrity* 18, no. 2: 127-148.

Cordis, A.S., and P.L. Warren. 2014. “Sunshine as disinfectant: The effect of state Freedom of Information Act laws on public corruption.” *Journal of Public Economics* 115: 18-36.

Crider, K., and J. Milyo. 2013. “Do state ethics commissions reduce political corruption: An exploratory investigation.” *UC Irvine Law Review* 3, no. 3: 717-733.

Dass, N., V. Nanda, and S.C. Xiao. “Public corruption in the United States: Implications for local firms.” *The Review of Corporate Finance Studies* 5, no. 1 (2016): 102-138.

Department of Justice (DOJ). 2015. “U.S. v. Sheldon Silver indictment.” Last modified February 19, 2015. https://www.justice.gov/usao-sdny/pr/us-v-sheldon-silver-indictment.

Department of Justice (DOJ). 2017a. “U.S. v. Rufus Seth Williams indictment.” Last modified March 21, 2017. https://www.justice.gov/usao-nj/press-release/file/950406/download.

Department of Justice (DOJ). 2017b. “U.S. Attorneys: About.” Last modified April 6, 2017. https://www.justice.gov/usao/about-offices-united-states-attorneys.

DiBiagio, T.M. 2020. “Public corruption prosecutions as financial crimes under federal criminal law: Targeting the illicit use and misuse of public assets and resources.” *American Criminal Law Review* 57: 233-274.

Dichev, I.D., J.R. Graham, C.R. Harvey, and S. Rajgopal. 2013. “Earnings quality: Evidence from the field.” *Journal of Accounting and Economics* 56, no. 2-3: 1-33.

Djankov, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer. 2010. “Disclosure by politicians.” *American Economic Journal: Applied Economics* 2, no. 2: 179-209.

Duro, M., J. Heese, and G. Ormazabal. 2019. “The effect of enforcement transparency: Evidence from SEC comment-letter reviews.” *Review of Accounting Studies* 24, no. 3: 780-823.

Federal Bureau of Investigation. n.d. “Field offices.” Accessed December 2019. https://www.fbi.gov/contact-us/field-offices.

Faccio, M. 2006. “Politically connected firms.” *American Economic Review* 96, no. 1: 369-386.

Flynn, S.J. 2017. “Debt structure and future financing and investment.” Doctoral dissertation, Arizona State University.

Fung, A., M. Graham, and D. Weil. 2007. *Full disclosure: The perils and promise of transparency.* New York: Cambridge University Press.

Gao, P., C. Lee, and D. Murphy. 2020. “Financing dies in darkness? The impact of newspaper closures on public finance.” *Journal of Financial Economics* 135, no. 2: 445-467.

Giroud, X., and J. Rauh. 2019. “State taxation and the reallocation of business activity: Evidence from establishment-level data.” *Journal of Political Economy* 127, no. 3: 1262-1316.

Glaeser, E.L., and R.E. Saks. 2006. “Corruption in America.” *Journal of Public Economics* 90, no. 6-7: 1053-1072.

Glewwe, P., P. H. Ross, and B. Wydick. “Developing hope among impoverished children using child self-portraits to measure poverty program impacts.” *Journal of Human Resources* 53, no. 2 (2018): 330-355.

Godwin, B. 2016. “Late-night ethics change weakens government transparency in Ga.” *Atlanta Journal-Constitution*, September 3, 2016. https://www.ajc.com/news/state--regional-govt--politics/late-night-ethics-change-weakens-government-transparency/.

Goldman, E., J. Rocholl, and J. So. 2013. “Politically connected boards of directors and the allocation of procurement contracts.” *Review of Finance* 17, no. 5: 1617-1648.

Graham, B.A.T., M.K. Miller, and K.W. Strom. 2017. “Safeguarding democracy: Powersharing and democratic survival.” *American Political Science Review* 111, no. 4: 686-704.

Habershon, A., and S. Trapnell. 2012. *Public office, private interests: Accountability through income and asset disclosure*. Washington, D.C.: The World Bank.

Healy, P.M., and K.G. Palepu. 2001. “Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature.” *Journal of Accounting and Economics* 31, no.1-3: 405-440.

Heese, J., R. Krishnan, and H. Ramasubramanian. “The Department of Justice as a gatekeeper in whistleblower-initiated corporate fraud enforcement: Drivers and consequences.” *Journal of Accounting and Economics* 71, no. 1 (2021): 101357.

International Monetary Fund (IMF). n.d. “Tackling corruption: financial disclosure systems for public officials.” Accessed December 2019. https://imfilab.brightidea.com/Anticorruption.

Jha, A., and Y. Chen. “Audit fees and social capital.” *The Accounting Review* 90, no. 2 (2015): 611-639.

Lambert, R.A. 1986. “Executive effort and selection of risky projects.” *The RAND Journal of Economics*: 77-88.

Leuz, C., and P.D. Wysocki. 2016. “The economics of disclosure and financial reporting regulation: Evidence and suggestions for future research.” *Journal of Accounting Research* 54, no. 2: 525-622.

McNeal, R.S., and K. Hale. 2010. “E-disclosure of campaign finance information: Divergent interests in the states.” *Journal of Information Technology & Politics* 7, no. 1: 52-66.

McNeal, R.S., C.J. Tolbert, K. Mossberger, and L.J. Dotterweich. 2003. “Innovating in digital government in the American states.” *Social Science Quarterly* 84, no. 1: 52-70.

Mehta, M.N., S. Srinivasan, and W. Zhao. 2020. "The politics of M&A antitrust." *Journal of Accounting Research* 58, no. 1: 5-53.

Neil, M. 2009. "Lawyer told now-convicted former lawmaker Joseph Bruno to avoid fraud charges by avoiding mail." *ABA Journal*, December 7, 2009. https://www.abajournal.com/news/article/lawyer_told_convicted_ex-lawmaker_to_avoid_fraud_charges_by_avoiding_mail.

National Conference of State Legislatures (NCSL). 2017. "Full- and part-time legislatures." Last modified June 14, 2017. https://www.ncsl.org/research/about-state-legislatures/full-and-part-time-legislatures.aspx.

National Conference of State Legislatures (NCSL). 2019. "Legislators financial disclosures: Income." Last modified September 30, 2019. www.ncsl.org/research/ethics/financial-disclosure-for-legislators-income.aspx.

Nguyen, T. "The Effectiveness of White-Collar Crime Enforcement: Evidence from the War on Terror." *Journal of Accounting Research* 59, no. 1 (2021): 5-58.

Oster, E. 2017. "Unobservable selection and coefficient stability: Theory and evidence." *Journal of Business & Economic Statistics* 37, no. 2: 187-204.

Romer, C.D., and D.H. Romer. 2010. "The macroeconomic effects of tax changes: estimates based on a new measure of fiscal shocks." *American Economic Review* 100, no. 3: 763-801.

Shleifer, A., and R.W. Vishny. "Corruption." *The Quarterly Journal of Economics* 108, no. 3 (1993): 599-617.

Soltes, E. 2014. "Incorporating field data into archival research." *Journal of Accounting Research* 52, no. 2: 521-540.

Sun, L., and S. Abraham. "Estimating dynamic treatment effects in event studies with heterogeneous treatment effects." *Journal of Econometrics* 225, no. 2 (2021): 175-199.

Szakonyi, D. 2018. "Indecent disclosures: Anti-corruption campaigns and political selection." Available at SSRN 3101123.

Tahoun, A., and F.P. Vasvari. 2019. "Political lending." *Institute for New Economic Thinking Working Paper Series* 47.

Tahoun, A. and VanLent. 2019. "The personal wealth interests of politicians and government intervention in the economy." *Review of Finance* 23, no. 1: 37-74.

Tolbert, C.J., K. Mossberger, and R.S. McNeal. 2008. "Institutions, policy innovation, and E-Government in the American States." *Public administration review* 68, no. 3: 549-563.

Transactional Records Access Clearinghouse (TRAC). 2011. "Federal prosecutor data." Last modified March 11, 2011. https://trac.syr.edu/data/jus/eousaData.html.

Weiser, B. and S. Craig. 2015. “Sheldon Silver, ex-New York Assembly Speaker, is found guilty on all counts.” *New York Times*, Nov. 30, 2015. https://www.nytimes.com/2015/12/01/nyregion/sheldon-silver-guilty-corruption -trial.html.

Weiser, B. and J. McKinley. 2020. “Sheldon Silver, former N.Y. Assembly Speaker, will finally go to prison.” *New York Times*, July 20, 2020. https://www.nytimes.com/2020/07/20/nyregion/sheldon-silver-sentencing-prison.html.

White, L.E. 2017. “Conflicted interests: State lawmakers often blur the line between the public’s business and their own.” Center for Public Integrity. Last modified October 26, 2018. https://publicintegrity.org/state-politics/conflicted-interests-state-lawmakers-often-blur-the-line-between-the-publics-business-and-their-own/.

Wihbey, J., and M. Beaudet. 2016. “Transparency, corruption, and the information needs of communities: The case of personal financial disclosure.” *Northeastern University School of Law Research Paper* 278-2016.

Table 1. Classification of online PFD adopters based on field interviews

Table 1 presents the classification of online PFD adopter states across two dimensions: (1) whether the state adopted online PFD due to efficiency or corruption motivations and (2) whether the state offers online PFD for state and/or local filers. I perform field interviews to classify states according to their motivations for adopting online PFD (see details in Appendix C). The treatment sample includes efficiency-motivated states with treatment dates which allow for seven observation-years within the sample period (2004-2017).

	Efficiency-motivated	*Corruption-motivated*
Local filers	CA, GA+, MN**, NH, PA, SC, MA*	AL, DC*, FL, LA, MS, NE, NV, OR*, TN [AR**]
State filers	AK, AZ*, CA, GA+, HI, KS*, KY**, ME**, MN**, MT, NH, NJ**, NC*, OH**, PA, SC, SD*, MA* [IA*, UT]	AL, DC*, FL, LA, MS, NE, NM, NV, NY, OR*, TN, VA*, WV [AR**, IL]

Notes:

[] Interview resulted in ambiguous classification. Note that NM and AL declined to interview.

* States fall out of sample because online PFD dates fall too close to the end of the sample period to allow for observations three years pre- and post-treatment. Since the sample ends in 2017, an adopter is considered late if they adopted online PFD in 2015 or after.

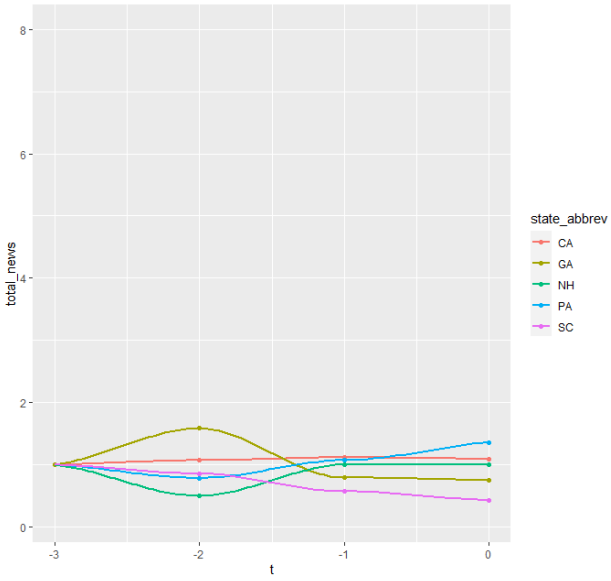
** States fall out of sample because online PFD dates fall too close to the beginning of the sample period to allow for observations three years pre- and post-treatment. Since the referral sample begins in 2004, an adopter is considered early if they adopted online PFD in 2006 or before.

+ In Georgia, local PFD was only available online from 2008 to 2014.

Figure 1. Pre-treatment trends in public corruption media mentions for sample local adopters

The figures below illustrate trends in national and local news media mentions of public corruption in the three years prior to local online PFD adoption (pre-treatment period) in the sample. Counts of media mentions are standardized based on the earliest pre-treatment year (t-3) to examine differences in coverage trends, and specifically whether there are pre-treatment shifts in coverage trends in the efficiency-motivated adoption group. Overall, there appears to be more shifts in corruption coverage in the corruption-motivated group relative to the efficiency-motivated group. Within the efficiency-motivated group, I do not observe major changes in coverage in the three years prior to online PFD.

A. Efficiency-motivated adopters



B. Corruption-motivated adopters

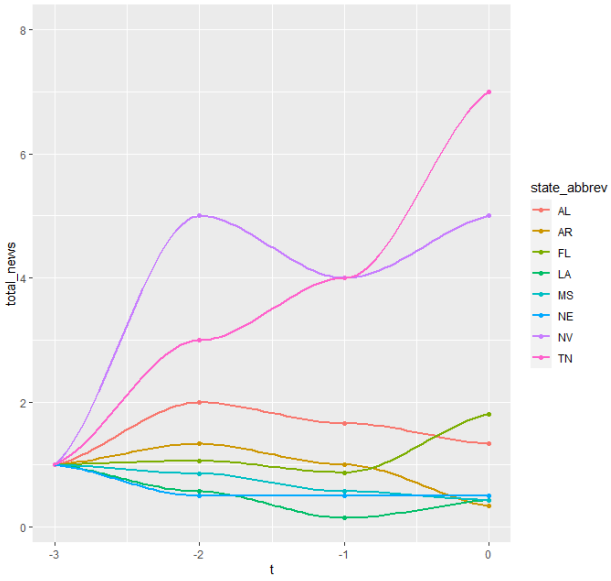


Figure 2. Research design

For its main results, the paper estimates Equation (1) where the treatment indicator, online_PFD_x_post$_{s,l,t}$ equals one from year t+1 if state *s* has made PFD available online for officials in program level *l* in year *t*. The following table summarizes this coding:

Sample year	**t-3**	**t-2**	**t-1**	**t**	**t+1**	**t+2**	**t+3**
Treated district	0	0	0	0	1	1	1
Control district	0	0	0	0	0	0	0

Table 2. Variable descriptions

Variable type	Variable	Definition
Treatment	online_PFD_x_post	Indicator equals 1 in year t+1 and afterward if the state adopted online PFD in year t.
Independent variables	news_circ	Average daily newspaper circulation, scaled by district population. (Source: Editor and Publisher)
	ethics_budget	State ethics commission budget scaled by government size (full-time equivalent state and local government employees) and logged. (Source: COGEL)
Dependent variables	referral_rate	Number of referrals received per program (state, local, federal) per federal district-year, scaled by government size (full-time equivalent state and local government employees, in tens of thousands). (Source: TRAC)
	prosecution_rate	Proportion of referrals received in each federal district-year by the USAO which result in prosecution (case filing). (Source: TRAC)
	punishment_rate	Proportion of prosecuted referrals received in each federal district-year which resulted in sanctions including prison, probation and/or fines for the defendant. (Source: TRAC)
Controls	inc_per_cap	Per capita personal income (dollars) averaged across counties within each federal district. (Source: BEA)
	unemployment_rate	Average annual unemployment rate calculated as the ratio of unemployed individuals to total labor force, averaged across counties within each federal district. (Source: BEA)
	legal_exp	Expenditures (thousands of dollars) on legal services spent by state and local levels of government, scaled by state population. (Source: U.S. Census)
	edu_rate	High-school educational attainment as a share of the state population. (Source: U.S. Census)
	int_rate	Proportion of adults over the age of fifteen with access to internet within the state. (Source: NTIA)
	dem	Indicator for whether the Democratic party holds a majority in the state legislature. (Source: NCSL)
	year	Year.
	federal_district	Federal district. Note that data collected at the county level was aggregated to the federal district level using county-to-district assignments listed on the United States Courts' Public Access to Electronic Court Records website. (Source: PACER)

Table 3. Matched sample for local online PFD adopters

Panel A. Selection criteria

Panel A shows the treated and matched control federal districts which constitute the main sample of the paper. The treated districts belong to efficiency-motivated states which adopted local online PFD. Matched control districts belong to states which either: (1) never adopted local online PFD or (2) adopted local online PFD more than three years after the latest treated district. Matched controls are selected by the coarsened exact matching (CEM) algorithm based on income per capita, legislative party control, and census region, unless otherwise noted.

Treatment year	Treated district	Matched controls	Income per capita median	Legislative control	Census region
2012	California,C; California,N; California,E; California,S	Colorado; Hawaii; Washington,E; Oregon; Washington,W	Upper	Dem.	West
2012	New Hampshire	Connecticut; Maine; New Jersey; New York,E; New York,N; New York,S; New York,W; Rhode Island; Vermont; Massachusetts	Upper	Dem.	Northeast
2009	Pennsylvania,E	Alaska; Montana; Virginia,E	Upper	Split/ No maj.	Northeast*
2009	Pennsylvania,M; Pennsylvania,W	Indiana,N; Indiana,S; Kentucky,E; Kentucky,W; Michigan,E; Michigan,W; Ohio,N; Ohio,S	Lower	Split/ No maj.	Northeast*
2008	South Carolina; Georgia,M; Georgia, N; Georgia,S	Texas,E; Texas,N; Texas,S; Texas,W; Virginia,W	Lower	Rep.	South

**The matches for Pennsylvania are hand-selected. Pennsylvania districts did not have exact matches within its region of the Northeast due to its split party control of the legislature in the pre-treatment year. Hand-matched controls are matched based on median income per capita and political party control.*

Table 3 (Continued)

Panel B. Sample statistics

Panel B shows the summary statistics associated with the matched sample from Panel A. The median federal district income per capita is around $36,781 and the median number of local referrals is 3 per year. While corruption referrals occur in almost every district-year, prosecuted cases (and their associated punishment outcomes) occur more rarely in the sample.

Independent variables

	N	Mean	Std. Dev.	Min.	P25	P50	P75	Max.
news_circ	301	0.02	0.02	0.00	0.01	0.01	0.02	0.20
ethics_budget	301	1.40	0.78	0.00	0.93	1.46	1.83	5.33
income_per_cap	301	39,218.07	9,996.57	23,829.47	31,361.06	36,781.85	45,242.00	68,453.00
unemployment_rate	301	7.97	2.85	3.31	5.82	7.76	9.42	19.80
legal_exp	301	0.14	0.06	0.06	0.10	0.12	0.18	0.39
edu_rate	301	31.29	5.38	21.10	27.40	30.60	34.70	42.20
int_rate	301	0.83	0.02	0.78	0.82	0.84	0.85	0.87

Dependent variables

	N	Mean	Std. Dev.	Min.	P25	P50	P75	Max.
referral_rate	297	0.15	0.26	0.00	0.02	0.06	0.19	2.40
prosecution_rate	248	0.35	0.32	0.00	0.00	0.33	0.55	1.00
punishment_rate	170	0.83	0.29	0.00	0.75	1.00	1.00	1.00

Table 4. Referral rate

Table 4 investigates the impact of local online PFD on the referral rate of local corruption incidents detected by investigative agencies and referred to federal prosecutors. The dependent variable ("referral_rate") is the number of referrals detected by investigative agencies in a given federal district scaled by the number of government employees in that district's state (in tens of thousands). The variable "post" is an indicator variable equal to one for all post-treatment district-years, and "online_PFD" is a treatment indicator equal to one for all districts treated with local online PFD. Additional variables are described in Table 2. Column (1) displays a baseline specification with no fixed effects or controls. Column (2) adds district and year fixed effects, and Column (3) includes monitoring, economic and political controls. Standard errors are clustered at the state level. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)
online_PFD_x_post	0.086**	0.085**	0.097**
	(2.20)	(2.29)	(2.11)
post	-0.048		
	(-1.39)		
online_PFD	-0.064		
	(-1.12)		
Monitoring controls			
news_circ, ethics_budget	N	N	Y
Economic and political controls			
income_per_cap, unemployment_rate, legal_exp, edu_rate, int_rate, leg_maj	N	N	Y
Fixed effects			
year	N	Y	Y
federal_district	N	Y	Y
Observations	297	297	297
Adjusted R-squared	0.003	0.524	0.533
Robust t-statistics in parentheses	*** p<0.01, ** p<0.05, * p<0.1		

Table 5. Prosecution rate

Table 5 investigates the impact of local online PFD on the proportion of case referrals selected for prosecution. The dependent variable is the proportion of referrals from investigative agencies selected by the USAO for prosecution in each federal district ("prosecution_rate"). The variable "post" is an indicator variable equal to one for all post-treatment district-years, and "online_PFD" is a treatment indicator equal to one for all districts treated with local online PFD. Additional variables are described in Table 2. Column (1) displays a baseline specification with no fixed effects or controls. Column (2) adds district and year fixed effects, and Column (3) includes monitoring, economic and political controls. Standard errors are clustered at the state level. Note that three control districts did not have sufficient observations in either the pre- or post-adoption period and were removed from the sample. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)
online_PFD_x_post	0.106	0.134*	0.180**
	(1.59)	(2.01)	(2.44)
post	-0.035		
	(-0.58)		
online_PFD	-0.003		
	(-0.05)		
Monitoring controls			
news_circ, ethics_budget	N	N	Y
Economic and political controls			
income_per_cap, unemployment_rate, legal_exp, edu_rate, int_rate, leg_maj	N	N	Y
Fixed effects			
year	N	Y	Y
federal_district	N	Y	Y
Observations	244	244	244
Adjusted R-squared	-0.004	0.217	0.265
Robust t-statistics in parentheses	*** p<0.01, ** p<0.05, * p<0.1		

Table 6. Subsample tests

Table 6 explores how the main effects of local online PFD on "referral rate" (Table 4) and "prosecution rate" (Table 5) might vary across subsamples with strong and weak external and internal monitoring. The subsamples for external monitoring are defined by splitting the sample into federal districts with above and below-median media coverage ("news_circ") in the pre-treatment year (Columns (1) and (2)). The subsamples for internal monitoring are defined by splitting the sample into districts with above and below-median ethics budget ("ethics_budget") in the pre-treatment year (Columns (3) and (4)). Additional variables are described in Table 2. Standard errors are clustered at the state level. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A. Referral rate

	External		Internal	
	High	Low	High	Low
	(1)	(2)	(3)	(4)
online_PFD_x_post	0.145*	0.078*	0.153*	0.142*
	(2.06)	(1.82)	(1.93)	(1.95)
Monitoring, economic, and political controls				
news_circ, ethics_budget, income_per_cap, unemployment_rate, legal_exp, edu_rate, int_rate, leg_maj	Y	Y	Y	Y
Fixed effects				
year, federal_district	Y	Y	Y	Y
Observations	199	167	160	137
Adjusted R-squared	0.532	0.602	0.537	0.430
Robust t-statistics in parentheses	*** p<0.01, ** p<0.05, * p<0.1			

Panel B. Prosecution rate

	External		Internal	
	High	Low	High	Low
	(1)	(2)	(3)	(4)
online_PFD_x_post	0.169	0.164*	0.264***	0.188
	(1.31)	(1.99)	(3.18)	(0.70)
Monitoring, economic, and political controls				
news_circ, ethics_budget, income_per_cap, unemployment_rate, legal_exp, edu_rate, int_rate, leg_maj	Y	Y	Y	Y
Fixed effects				
year, federal_district	Y	Y	Y	Y
Observations	152	141	130	114
Adjusted R-squared	0.337	0.235	0.397	0.227
Robust t-statistics in parentheses	*** p<0.01, ** p<0.05, * p<0.1			

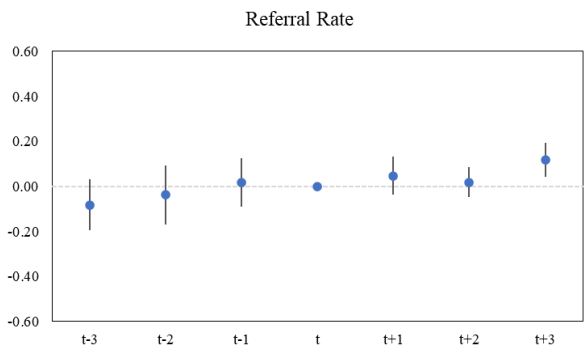
Table 7. Robustness: dynamic treatment effects and parallel trends

Recent papers raise concerns that staggered difference-in-differences designs may be biased in the presence of heterogeneous treatment effects. Moreover, assessing pre-trend estimates using this design may be invalid. To address these concerns, I follow Baker, Larcker, and Wang (2021) and apply a stacked regression to test the robustness of the main results and assess pre-treatment trends. The stacked regression is identical to Equation (1) except district and year fixed effects are replaced with district-dataset and year-dataset indicators. Each "dataset" refers to an event-specific dataset of treated and matched control districts aligned in relative time. Panel A, Column (1) uses the stacked regression to re-estimate the referral rate result from Table 4, Column (3) and Panel A, Column (2) re-estimates the prosecution rate result from Table 5 Column (3). Panels B and C use the stacked regression to assess pre-treatment trends for referral and prosecution rate outcomes respectively, replacing online_PFD_x_post with a set of seven relative time indicators. I omit the indicator for t, the period before online PFD treatment, as the baseline period. Vertical bars represent 90% confidence intervals for each point estimate. Standard errors are clustered at the state level. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A. Stacked regression

	Referral_rate (1)	Prosecution_rate (2)
online_PFD_x_post	0.080**	0.218***
	(2.38)	(4.72)
Monitoring, economic, and political controls		
news_circ, ethics_budget, income_per_cap, unemployment_rate, legal_exp, edu_rate, int_rate, leg_maj	Y	Y
Fixed effects		
year-dataset, federal_district-dataset	Y	Y
Observations	297	244
Adjusted R-squared	0.515	0.110
Robust t-statistics in parentheses	*** p<0.01, ** p<0.05, * p<0.1	

Panel B. Dynamic referral rate result



Panel C. Dynamic prosecution rate result

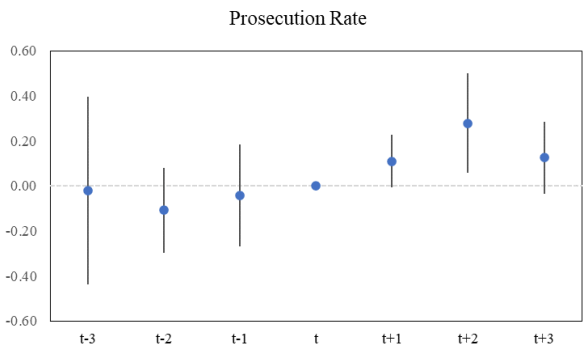


Table 8. Robustness: placebo tests

Table 8 includes robustness tests for the results presented in Tables 4 and 5 using a placebo outcome variable (Panel A) and placebo treatment years (Panel B). Following Cordis and Warren (2014), Panel A is a robustness test showing that federal officials are unaffected by changes to local officials' PFD availability. The dependent variables are identical to those used in the Tables 4 and 5 ("referral_rate," "prosecution_rate") using measures of federal corruption as opposed to local corruption. In Panel B, the treatment year is randomly selected from the pre-treatment period. The dependent variables are identical to those used in the Tables 4 and 5 ("referral_rate," "prosecution_rate"). For both panels, additional variables are described in Table 2. Standard errors are clustered at the state level. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A. Placebo outcome variable

	Referral_rate (1)	Prosecution_rate (2)
online_PFD_x_post	-0.027	0.108
	(-0.72)	(1.44)
Monitoring, economic, and political controls news_circ, ethics_budget, income_per_cap, unemployment_rate, legal_exp, edu_rate, int_rate, leg_maj	Y	Y
Fixed effects year, federal_district	Y	Y
Observations	297	269
Adjusted R-squared	0.451	0.174
Robust t-statistics in parentheses	*** p<0.01, ** p<0.05, * p<0.1	

Panel B. Placebo treatment year

	Referral_rate (1)	Prosecution_rate (2)
online_PFD_x_post	0.018	0.083
	(0.43)	(0.77)
Monitoring, economic, and political controls news_circ, ethics_budget, income_per_cap, unemployment_rate, legal_exp, edu_rate, int_rate, leg_maj	Y	Y
Fixed effects year, federal_district	Y	Y
Observations	299	249
Adjusted R-squared	0.430	0.186
Robust t-statistics in parentheses	*** p<0.01, ** p<0.05, * p<0.1	

APPENDIX A. Stylized model

Prop. 1. Referral volume is higher under "online disclosure" than "request disclosure."

In my model, an investigator decides whether to refer a lead. Not referring will generate payoff U_O with certainty. Referring the lead will either generate a high payoff $U_H > U_O$ or low payoff $U_L < U_O$. High payoff (U_H) represents the net benefit of a successful referral that leads to prosecution. The low payoff (U_L) captures the cost of referring a lead to the USAO that does not result in prosecution. Before making a referral, investigators can seek information about the quality of the lead—the posterior probability of U_H occurring after making a referral—via official PFD. If the investigator blindly refers leads without information, then U_H occurs with probability .5.[35]

The investigator's decision problem is akin to executive's problem in Lambert 1986, who seeks additional information when choosing between a safe project (no referral) and a risky project (referral). Following Lambert, I model the additional information signal as r, representing the posterior probability of U_H occurring if the investigator refers the lead. The posterior probability r is uniformly distributed between 0 and 1. Observing r—obtaining information from the PFD—means that investigators will have better information about whether a lead should be prosecuted. I denote a threshold value $\hat{r}$ at which the investigator will refer a lead if $r > \hat{r}$ and not refer if $r < \hat{r}$.

I consider two regimes by which a social planner can make official PFD (the additional information r) available to investigators.[36] First, the social planner can make r *publicly observable* through online PFD ("online disclosure") which imposes a social cost c from official privacy costs. Second, the social planner can make r *privately observable* to the investigator through a request or subpoena ("request disclosure") which imposes investigation frictions on investigators. These frictions reduce the posterior probability r of a successful referral by some constant δ.

In the "online disclosure" regime, for a given lead the investigator publicly observes r and decides whether to refer the lead for prosecution. To find the optimal threshold value $\hat{r}$ under "online disclosure," I solve the investigator's maximization problem given below:

$$\max_{\hat{r}} \quad U_O p_O(\hat{r}) + U_L p_L(\hat{r}) + U_H p_H(\hat{r}) \tag{1}$$

The investigator's expected payoff is a function of the three potential payoffs (U_O,U_L,U_H) and the probabilities of those respective payoffs occurring (p_O,p_L,p_H) which are functions of $\hat{r}$. I infer:

$$\begin{cases} p_O(\hat{r}) = \hat{r} \\ p_L(\hat{r}) = 0.5(1-\hat{r})^2 \\ p_H(\hat{r}) = 0.5(1-\hat{r}^2) \end{cases} \tag{2}$$

Substituting these expressions into the investigator's maximization problem (1) and solving for $\hat{r}$ yields the optimal referral threshold r^*_{OD} under the "online disclosure" regime. The second-order condition confirms that r^*_{OD} is a maximum.

Conversely, in the "request disclosure" regime, investigators absorb an information friction penalty if they choose to seek information about r. If the investigator chooses to refer a lead, the probability of U_H occurring is lowered by a friction penalty $\delta \in (0, \frac{U_H - U_O}{U_H - U_L})$. This penalty modifies

[35] I further assume $U_O > .5\ (U_H + U_L)$ such that the investigator will always prefer to view PFD than not view PFD. This is because not viewing PFD will generate a payoff of at *most* U_O for the investigator whereas referring after viewing PFD will generate a payoff of at *least* U_O for the investigator.

[36] I assume investigators act on behalf of the public, and therefore do not require a principal to incentivize them to seek information. Hence, the effort cost of observing r will be normalized to zero under online disclosure.

the probabilities of the high and low payoffs occurring. Substituting these expressions into the investigator's maximization problem (1) and solving for $\hat{r}$ yields the optimal referral threshold r^*_{RD} under the "request disclosure" regime. The second-order condition confirms r^*_{RD} is a maximum.

Comparing the threshold across both regimes demonstrates that the threshold for making a referral under the "request disclosure" regime has increased by the friction cost δ.[37] In other words,

$$r^*_{RD} = r^*_{OD} + \delta \tag{3}$$

Because the threshold for referring leads is higher in the request disclosure regime than in the online disclosure regime, this ought to produce a higher volume of referrals under online disclosure than under request disclosure (**H1**).

Prop. 2. Conditional on referral, leads under "online disclosure" have a higher prosecution probability than those under "request disclosure."

I show that referrals under online disclosure have a higher probability of prosecution than those under request disclosure.[38] I check whether:

$$\mathrm{E}[\,r \mid r > r^*_{OD}\,] >^{?} \mathrm{E}[\,r \mid r > r^*_{RD}\,] - \delta \tag{4}$$

$$\Leftrightarrow \delta >^{?} 0 \tag{5}$$

By definition, $\delta > 0$ is true. Conditional on referral, the probability of leads resulting in prosecution is higher under the "online disclosure" regime compared to the "request disclosure" regime (**H2**).[39]

Prop. 3. "Online disclosure" may be socially optimal compared to "request disclosure" depending on information friction (δ) and privacy costs (c).

I consider the conditions under which online disclosure may be socially optimal. I compare the total expected payoff under online and request disclosure.[40] Online disclosure is optimal if:

$$p_O(r^*_{OD})U_O + p_L(r^*_{OD})U_L + p_H(r^*_{OD})U_H - c > p_O(r^*_{RD})U_O + p_L(r^*_{RD})U_L + p_H(r^*_{RD})U_H \tag{6}$$

Substituting our expressions for r^*_{OD} and r^*_{RD} and simplifying results in the following condition:

$$c < (U_H - U_O)\delta - .5(U_H - U_L)\delta^2 \tag{7}$$

The derivative of the right-hand side of inequality (7) with respect to δ is positive if $\delta < \frac{U_H - U_O}{U_H - U_L}$, which holds by definition of δ. Thus online disclosure is likely optimal if privacy costs c are low, and information friction costs δ are high.

---

[37] Note that $\delta \in (0, \frac{U_H - U_O}{U_H - U_L})$ implies that $r^*_{RD} \in (r^*_{OD}, 1)$. If δ = 0, then the optimal cutoff is identical under both regimes. If $\delta = \frac{U_H - U_O}{U_H - U_L}$, then it is optimal for the investigator to never make a referral regardless of the observed r. The information friction costs are so high that the investigator always prefers to receive payoff U_O for certain and never makes a referral. Thus, $\frac{U_H - U_O}{U_H - U_L}$ defines the upward bound of δ.

[38] I compare whether the probability of U_H occurring, conditional on the investigator making a referral, is greater under the "online" or "request" disclosure." Under "online disclosure" investigators make referrals if $r > r^*_{OD}$, whereas under "request disclosure" they make referrals if $r > r^*_{RD}$.

[39] Under alternate assumptions for the distribution of r, this prediction could go in the opposite direction. Testing H2 is ultimately an empirical question, as addressed in the main paper.

[40] Recall that the information friction cost δ is already incorporated in the calculation of r^*_{RD}.

APPENDIX B

PFD treatment dates and links

Note: All websites were accessed in December 2019.

State	***Form name***	***Associated oversight body***	***Searchable web link***	***Web link includes disclosures for:***		***Earliest date of web link for:***	
				State	*Local*	*State*	*Local*
Alabama	Statement of Economic Interests	Alabama Ethics Commission	http://ethics.alabama.gov/Search/PublicOfficialEmployeeSearch.aspx	x	x	2012	2012
Alaska	Public Official Financial Disclosure (POFD), Legislative Financial Disclosure (LFD)	Alaska Committee on Legislative Ethics	https://aws.state.ak.us/ApocReports/POFD/	x	N/A	2013	N/A
Arizona	Financial Disclosure Statement	N/A	https://azsos.gov/elections/campaign-finance-reporting/financial-disclosure-statements	x	N/A	2016	N/A
Arkansas	Statement of Financial Interest	Arkansas Ethics Commission	http://www.sos.arkansas.gov/filing_search/index.php/filing/search/new	x	x	2005	2005
California	Statement of Economic Interests, Form 700	California Fair Political Practices Commission	http://www.fppc.ca.gov/transparency/form-700-filed-by-public-officials/form700-search/form700-old.html	x	x	2012	2012
Colorado	Personal Financial Disclosure	Colorado Independent Ethics Commission	http://www.sos.state.co.us/	N/A	N/A	N/A	N/A
Connecticut	Statement of Financial Interests	Connecticut Office of State Ethics	http://www.ct.gov/ethics/cwp/view.asp?a=3510&q=416556	N/A	N/A	N/A	N/A
Delaware	Financial Disclosure Report	Delaware Public Integrity Commission	http://sos.delaware.gov/foia_requests.shtml	N/A	N/A	N/A	N/A
D.C.	Public Financial Disclosure Statement	District of Columbia Board of Ethics and Government Accountability	https://ocf.dc.gov/service/archived-financial-disclosure-statements	x	x	2015	2015
Florida	Full and Public Disclosure of Financial Interests (Form 6)	Florida Commission on Ethics	http://public.ethics.state.fl.us/search.cfm	x	x	2006	2006
Georgia	Financial Disclosure Statement	Georgia State Ethics Commission	http://media.ethics.ga.gov/search/Financial/Financial_ByName.aspx	x	x	2006	2008
Hawaii	Disclosure of Financial Interests	Hawaii State Ethics Commission	http://ethics.hawaii.gov/alldisc/	x	N/A	2014	N/A

Idaho	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Illinois	Statement of Economic Interests	Illinois Secretary of State	http://www.ilsos.gov/economicinterest/economicinterest	x	N/A	2004	N/A
Indiana	Financial Disclosure Statement	Indiana State Ethics Commission	http://campaignfinance.in.gov/PublicSite/Search.aspx	N/A	N/A	N/A	N/A
Iowa	Personal Financial Disclosure form (Legislators and Candidates)	Iowa Ethics & Campaign Disclosure Board	https://www.legis.iowa.gov/legislators/informationOnLegislators/econInterests	x	N/A	2017	N/A
Kansas	Statement of Substantial Interest	Kansas Governmental Ethics Commission	https://www.sos.ks.gov/elections/ssi/examiner_entry.aspx	x	N/A	2015	N/A
Kentucky	Statement of Financial Disclosure	Kentucky Legislative Ethics Commission	http://klec.ky.gov/Reports/Pages/Legislators-and-Candidates.aspx	x	N/A	2000	N/A
Louisiana	Financial Disclosure Statement	Louisiana Ethics Administration	http://ethics.la.gov/PFDisclosure/DisclosureSearch.aspx	x	x	2011	2011
Maine	Financial Disclosure Statement	Maine Commission on Governmental Ethics & Election Practices	https://www.maine.gov/ethics/legislators/disclosure	x	N/A	2006	N/A
Maryland*	Financial Disclosure Statement	Maryland State Ethics Commission	http://ethics.maryland.gov/employeeoffcials/financial-disclosure/	N/A	N/A	N/A	N/A
Massachu-setts	Statement of Financial Interests	Massachusetts Ethics Commission	https://www.mass.gov/how-to/public-inspection-of-sfis	x	x	2017	2017
Michigan	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Minnesota	Statement of Economic Interest (Senators and House of Representatives Members)	Minnesota Campaign Finance and Public Disclosure Board	http://www.cfboard.state.mn.us/eis/poatoz.html	x	x	2000	2000
Mississippi	Statement of Economic Interest	Mississippi Ethics Commission	http://www.ethics.state.ms.us/	x	x	2008	2011
Missouri	Personal Financial Disclosure	Missouri Ethics Commission	http://mec.mo.gov/mec/PFD/Home.aspx	N/A	N/A	N/A	N/A
Montana	Form D-1 Business Disclosure Statement	Montana Commissioner of Political Practices	https://campaignreport.mt.gov/forms/candidatesearch.jsp	x	N/A	2007	N/A
Nebraska	Form C-1	Nebraska Accountability & Disclosure Commission	http://www.nadc.nebraska.gov/ccdb/search.cgi	x	x	2014	2014

Nevada	Financial Disclosure Statement	Nevada Commission on Ethics	https://www.nvsos.gov/SOSCandidateServices/AnonymousAccess/CEFDSearchUU/Search.aspx#individual_search	x	x	2014	2014
New Hampshire	Financial Disclosure Form	New Hampshire Attorney General's Office	https://sos.nh.gov/FinInterest.aspx	x	x	2012	2012
New Jersey	Financial Disclosure Statement	Joint Legislative Committee on Ethical Standards	https://www.njleg.state.nj.us/ethics/FinanceDiscloseForms.asp	x	N/A	2005	N/A
New Mexico	Financial Disclosure Statement	N/A	https://portal.sos.state.nm.us/FinancialDisclosure/search.aspx	x	N/A	2017	N/A
New York	Financial Disclosure Statement	New York State Commission on Public Integrity	https://www.jcope.ny.gov/financial-disclosure-statements-elected-officials	x	N/A	2011	N/A
North Carolina	Statement of Economic Interest	North Carolina State Ethics Commission	https://ethics.ncsbe.gov/	x	N/A	2017	N/A
North Dakota	Statement of Interests, required for candidates	N/A	https://www2.jlec-olig.state.oh.us/fds/ReportsSearch.aspx	N/A	N/A	N/A	N/A
Ohio	Financial Disclosure Statement	Ohio Ethics Commission	https://www2.jlec-olig.state.oh.us/fds/ReportsSearch.aspx	x	N/A	1998	N/A
Oklahoma	Financial Disclosure Statement	Oklahoma Ethics Commission	http://guardian.ok.gov/	N/A	N/A	N/A	N/A
Oregon	Financial Disclosure Statement	Oregon Government Ethics Commission	https://apps.oregon.gov/OGEC/EFS/Records	x	x	2016	2016
Pennsylvan-ia	Financial Interest Form	Pennsylvania Ethics Commission	http://www.ethicsrulings.state.pa.us/	x	x	2009	2009
Rhode Island	Financial Disclosure Statement	Rhode Island Ethics Commission	http://www.ethics.ri.gov/disclosure/	N/A	N/A	N/A	N/A
South Carolina	Statement of Economic Interest	South Carolina State Ethics Commission	http://apps.sc.gov/PublicReporting/IndSEI.aspx	x	x	2008	2008
South Dakota	Statement of Economic Interest	N/A	https://sdsos.gov/general-information/executive-actions/oaths-of-office/search/	x	N/A	2016	N/A

Tennessee	Statement of Disclosure of Interests	Tennessee Ethics Commission	https://apps.tn.gov/conflict-app/search.htm	x	x	2011	2011
Texas	Personal Financial Statement	Texas Ethics Commission	https://www.ethics.state.tx.us/filinginfo/pfsforms_ins.html	N/A	N/A	N/A	N/A
Utah	Conflict of Interest Financial Disclosure	Utah Office of the Lieutenant Governor	https://house.utah.gov/conflict-disclosures/	x	N/A	2014	N/A
Vermont	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Virginia	Financial Disclosure Statement	Virginia Conflict of Interest and Ethics Advisory Council	http://ethicssearch.dls.virginia.gov/#tabs1-conflict	x	N/A	2016	N/A
Washington	Personal Financial Affairs Statement	Washington Public Disclosure Commission	https://www.pdc.wa.gov/browse/campaign-explorer	N/A	N/A	N/A	N/A
West Virginia	Financial Disclosure Statement	West Virginia Ethics Commission	http://www.ethics.wv.gov/pages/financialdisclosuresearch.aspx	x	N/A	2013	N/A
Wisconsin	Statement of Economic Interests	Wisconsin Government Accountability Board	https://sei.wi.gov/	N/A	N/A	N/A	N/A
Wyoming	State Elected Officials Financial Disclosure	N/A	http://soswy.state.wy.us/Elections/Ethics.aspx	N/A	N/A	N/A	N/A

*According to its current website, Maryland began offering online PFD in 2019. However, it is unclear from the Wayback Machine at which point these disclosures became publicly accessible. Maryland is not included in the empirical analyses of this paper as its potential adoption year (2019) falls outside the sample period.

APPENDIX C. Efficiency and corruption-motivated adoption classification

In Table 1, I classify U.S. states by (**A**) online PFD adoption motivation (efficiency versus corruption) and (**B**) officeholder level responsible for filing PFD (local versus state officials).

(**A**) First, I classify states according to the underlying motivations behind PFD adoption using field interviews. I categorize adopter states into two buckets: (1) *efficiency-motivated* where adoption is driven by upgrade or modernization needs and (2) *corruption-motivated* where adoption is driven explicitly by public corruption concerns. I begin by conducting interviews of state offices which make online PFD available. These interviews took place in spring 2020 and lasted about thirty minutes each. Interviews consisted of the following questions:

1. *Please describe the history of your offices' financial disclosure system for public officials. For example, how long has the current financial disclosure system been in place?*
2. *What were the reasons which led to your office releasing the personal financial disclosures online?*
3. *Did your office receive any significant support or pushback surrounding the decision to put the disclosures online?*
4. *What constituencies consume personal financial disclosures?*
5. *What role does financial disclosure play in your office's mission of promoting ethics in public office?*

Based on interview responses, I identified four key motivations which support efficiency-motivated adoption: (1) convenience and modernization, (2) desire to 'practice what you preach', (3) cost savings, and (4) voluntary/office-led initiative. Conversely, corruption-motivated adoptions included the following: (1) comprehensive ethics reform bill or legislation, (2) wide-ranging amendment to existing legislation, (3) recent history of public corruption scandals, and (4) involuntary/government-led initiative.

Next, I classified the reasons cited in each interview according to the four key motivations in both the efficiency and corruption motivation buckets. In Table B-1, I articulate these motivations and tabulate the frequency each motivation was cited through my interviews, broken out by their classification group. (Note that one state interview may cite multiple reasons for online PFD adoption). There were several instances where interviews resulted in ambiguous or unclear classifications. For example, two states did not reply to requests for interview (Alabama and New Mexico).[41]

[41] In these cases, I refer to secondary sources to confirm the reasons behind online PFD adoption. These sources included: historical annual reports, minutes or other office publications available on state office websites, legislative history notes from WestLaw, media coverage, and historical office website via the Wayback Machine. I illustrate this process for the non-responder states: In Alabama, Act 2010-762 (sponsored by State Representative Paul DeMarco) required the State Ethics Commission to create a publicly accessible, online, searchable database of financial disclosures by April 2012. According to media coverage, the law was part of a package of anti-corruption measures encouraged by the outgoing governor (Capitol Retail Report 2010). Alabama was classified as a corruption-motivated adopter as it appears that the adoption was part of a wide-ranging reform to state ethics laws.

In New Mexico, the reasons behind implementation were more ambiguous. In an interview with the Secretary of State Mary Tolouse, she describes enacting "rules to shine a light on dark money and put elected officials' financial disclosure forms online" (Albuquerque Journal 2019). Since the motivations behind these policy changes are unclear from this secondary source interview, I conservatively classify New Mexico as a corruption-motivated adopter.

Table C-1. Frequency count for reported online PFD adoption motivations

		Efficiency adopters		*Corruption adopters*	
	Motivation	*Local*	*State*	*Local*	*State*
Efficiency motivations	1. Convenience and modernization	*5*	*15*	*0*	*0*
	2. Desire to "practice what you preach"	*2*	*6*	*2*	*2*
	3. Cost savings	*2*	*9*	*0*	*1*
	4. Voluntary/office-led initiative	*2*	*9*	*1*	*2*
Corruption motivations	1. Comprehensive ethics reform	*0*	*0*	*1*	*3*
	2. Wide-ranging amendment to existing	*0*	*0*	*3*	*5*
	3. Recent history of public corruption	*0*	*0*	*3*	*5*
	4. Involuntary/government-led initiative	*0**	*0**	*4*	*8*

*Note: For local (n=1) and state (n=4) efficiency-motivated adopters there were instances where the adoption was initiated by the office responsible for PFD, but the office collaborated with the state government in the effort to put PFD online. If a plausibly efficiency-motivated adoption resulted in a legislative rule-change, I ensured a lag time of at least three years between the rule-change and the online availability of PFD.

As noted in the paper, if online adoption dates conflicted between interviews and the Wayback Machine, I deferred to the date cited in the interview. The reasoning behind this choice is that using the Wayback Machine to determine when PFD are available is biased towards later years because it uses *current* PFD website links as its input. It is possible—and consistent with interview responses—that PFD were available online earlier using an older version of the office's website which is currently inactive.

Though I have tried to approach this classification systematically, judgements based on qualitative data are sensitive to discretion of the interviewee and researcher. Any errors in the final classification are my own.

(**B**) Second, I classify states according to whether they offer online PFD for state or local filers. I adopt a broad definition of "state" versus "local" official to maximize overlap between differing definitions by state, local, and federal institutions. The TRAC data contain referral and case filing data from USAOs tagged by the following DOJ categories: federal, state, and local corruption. Though categorization criteria are not available, according to TRAC "state corruption" relates to corrupt acts conducted by public officeholders in state government, and "local corruption" relates to corrupt acts conducted by public officeholders supporting any sub-geography of state government (i.e., counties, towns, etc.) I consider PFD requirements as they apply to officials serving in public office (elected or appointed) rather than candidates. A listing of official roles required to file PFD and online availability by state is available upon request.

Differences between the DOJ and states' classifications of public officials may introduce measurement error. However, this is likely to bias against finding significant results. For example, a state may consider an official "local" whereas the DOJ would categorize them as "state." Then local online PFD adoption should not have a significant effect on local corruption since the affected official's corrupt activity would be recorded as state corruption.

APPENDIX D. Field interview results

To protect respondent confidentiality, responses are aggregated and anonymized. Note that one respondent may cite multiple reasons in response to open-ended questions. Responses reflect the respondents' personal experiences and do not represent the official views of their employers.

Panel A. Federal prosecutors

A-Q1. *Most states across the country require public officials to make personal financial disclosures which are considered public records. To what degree do you feel these disclosures support investigation of public corruption? [i.e., not at all / somewhat / very much]*

	No. Responses	*%*
Very much	32	68%
Somewhat	10	21%
Not at all	3	6%
No response	2	4%
Total	47	100%

A-Q2. *[If supportive] How are they supportive – directly or indirectly? [i.e., disclosed information supports investigation / non-disclosed information supports investigation]*

A-Q2 – Overall response

	No. Responses	*%*
Both	25	53%
Indirect	14	30%
Direct	2	4%
No response / N/A	6	13%
Total	47	100%

A-Q2 – Reasons why PFD are indirectly supportive

	No. Mentions	*%*
Demonstrates criminal intent or consciousness of guilt	34	81%
Serves as point of comparison with other financial records	5	12%
Calls into question defendant credibility	3	7%
Total	42	100%

A-Q2 – Reasons why PFD are directly supportive

	No. Mentions	*%*
Provides leads to other evidence	15	38%
Helps connect official to other third-party organizations	10	26%
Commits official to financial statement at specific point in time	9	23%
Efficient "headstart" on investigations	4	10%
Helps clarify non-illicit transactions	1	3%
Total	39	100%

A-Q3. *[If not] Why are they not supportive? [i.e., redundant, not relevant, not reliable, not accessible]*

	No. Mentions	*%*
Disclosures too vague	4	57%
Lack of enforcment over disclosures	1	14%
Disclosures not easily searchable	1	14%
Irrelevant content	1	14%
Total	7	100%

A-Q4. *Many states have begun making these disclosures publicly available online. Do you think that public disclosure would support the prosecution of public corruption? Why or why not?*

A-Q4 – Overall response

	No. Responses	*%*
Yes	37	79%
No	6	13%
No response	4	9%
Total	47	100%

A-Q4 – Reasons why online PFD supportive

	No. Mentions	*%*
Helps public access information	19	33%
Helps reporters access information	15	26%
Deters officials from committing crime	7	12%
General public awareness	5	9%
Supports covert investigation	3	5%
Helps investigators easily access information	3	5%
Prosecutors are resource-constrained	3	5%
Helps open investigations	1	2%
Helps business competitors generate tips	1	2%
Total	57	100%

A-Q4 – Reasons why online PFD are not supportive

	No. Mentions	*%*
Privacy concerns for officials	12	50%
Already have subpoena power	5	21%
Deters candidates from seeking public office	2	8%
Disclosures too vague	1	4%
Disclosures not accessible/searchable enough	1	4%
Diminishing number of investigative journalists	1	4%
Corrupt officials will violate the law regardless of online PFD	1	4%
Lack of enforcement over financial disclosures	1	4%
Total	24	100%

Panel B. Journalists

B-Q1. *Most states across the country require public officials to make personal financial disclosures which are considered public records. Are you aware that these disclosures exist?*

	No. Responses	*%*
Yes	41	100%
Total	41	100%

B-Q2. *[If applicable] Were you aware when your state made these disclosures available online?*[1]

	No. Responses	*%*
Yes	32	78%
No	2	5%
N/A [Not online]	5	12%
No response	2	5%
Total	41	100%

B-Q3. *Have you or your colleagues ever used these disclosures as part of coverage of local and/or state government officials?*

	No. Responses	*%*
Yes	37	90%
No	4	10%
Total	41	100%

B-Q4. *If yes, what prompted you or your colleagues to consult these disclosures?*

	No. Mentions	*%*
Routine checks	15	23%
Tips from public	13	20%
Proposed legislation	12	19%
Periodic checks	8	13%
Election coverage	7	11%
Political conflicts	3	5%
N/A [not used]	2	3%
Seeking contact information	1	2%
Tips from business competitors	1	2%
Lawsuits	1	2%
No response	1	2%
Total	64	100%

B-Q5. *If PFD were not available, what other data sources might you consult to learn about a public officials' personal finances?*

	No. Mentions	*%*
Not sure	13	19%
Public tips	8	12%
State business registration records	8	12%
State property records	7	10%
Talk to public officials	5	7%
SEC filings	4	6%
LexisNexis/other news media	4	6%
Nonprofit tax records (CitizenAudit)	3	4%
Social media (LinkedIn, Facebook)	3	4%
Bankruptcy records	3	4%
Official state biographies/personnel files	2	3%
Misunderstood question*	2	3%
Third-party business records	1	1%
Campaign finance reports	1	1%
Lawsuits	1	1%
Divorce proceedings	1	1%
No response	3	4%
Total	69	100%

*Two interviewees responded with sources that do not contain financial information for state and/or local public officials.