

Amplifying Consumers’ Voice: The FTC’s ReportFraud Website Redesign*

Michel Grosz

Federal Trade Commission
mgrosz@ftc.gov

Devesh Raval

Federal Trade Commission
draval@ftc.gov

July 9, 2024

Abstract

We examine a website redesign in which the Federal Trade Commission (FTC) made consumer complaints easier to file. Using a regression discontinuity approach, we find that complaints to the FTC jumped by 28%, driven by increases in complaint completion rates, and that consumers submitted more detailed information. We find relatively small differences in this increase across demographic groups. Complaints after the redesign were shorter and easier to read, which may indicate the redesign induced less sophisticated consumers to complain. Finally, complaints induced by the redesign were more likely to report telemarketing and imposter scams, categories where consumers are less likely to report losing money.

Keywords: fraud, complaints, consumer protection, public good

*The views expressed in this article are those of the authors. They do not necessarily represent those of the Federal Trade Commission or any of its Commissioners. This paper was originally circulated as “Hassle Costs and Consumers’ Voice: Evidence from a Website Redesign”. We thank editor Catherine Tucker, two anonymous referees and the associate editor, and Emma Fletcher, Ginger Jin, Mike LeGower, Nellie Lew, Maria Mayo, Aviv Nevo, Rhonda Perkins, Patti Poss, Ted Rosenbaum, Navdeep Sahni, Dave Schmidt, Mark Shepard, James Thomas, and Paul Witt for their comments on this work.

1 Introduction

Consumer voice plays an important role in markets (Hirschman, 1972). For example, consumers post product reviews online and contact firms for redress when they are dissatisfied with a product. By doing so, they help firms improve their products and consumers choose what to buy.

In this article, we study consumer complaints about frauds, scams, and other bad business practices. Defrauded consumers can report their experiences to consumer protection agencies: more than 5 million consumers reported having lost almost \$9 billion in 2022 (Federal Trade Commission, 2023). Policymakers use this information to detect problems in the marketplace, to warn consumers of these problems, and as evidence to initiate enforcement actions.

Most consumers, however, do not exercise their voice. Only 5% of consumers affected by fraud say they complained to a government agency or the Better Business Bureau (Anderson, 2021). Such complaints can be thought of as a public good, as the private benefits to consumers from complaining are often small. They are even smaller if a consumer did not fall for the scam or if reporting fraud may not lead to recovered losses. On the other hand, filing a report requires significant time costs, including learning about which agency accepts reports and submitting all the appropriate information. Thus, reporting fraud relies on the consumer finding the costs being less than the benefits from altruism and the low expected private value of recovering one's losses.

We examine a major undertaking to increase complaint rates.¹ In October 2020, the FTC redesigned its online interface for reporting scams and fraud to make the process substantially easier to complete. By inducing consumers on the margin to complain, the redesign allows us to examine the characteristics of such consumers and the types of problems they report.

The redesign had two major effects on the costs and perceived benefits of complaining. On the cost side, it made it easier for consumers to complain by improving the process for consumers to classify the topic of their complaints, providing an easier to read visual design, and sharply shortening the flow process to complain. On the benefit side, the redesign highlighted the broader societal benefits of complaints – for example, the tagline of the landing page became “Report to

¹We refer to consumers' voluntary submission of information about fraud and other scams interchangeably as “reports” and “complaints” throughout this article. Although the FTC and other institutions long described this information as “complaints,” the FTC now describes this information as “reports”, in order to emphasize the problems that consumers may observe as opposed to whether the consumers were directly affected or lost money as a result.

help fight fraud!” over a visual of a stylized community. We provide more details on the website redesign, and our data on complaints, in [Section 2](#) and [Section 3](#).

Using a regression discontinuity approach detailed in [Section 4](#), we first show in [Section 5](#) that the FTC’s redesign led to a substantial rise in reporting. In the month following the redesign, the number of completed online complaints increased by 28 percent. This jump in complaints comes exclusively from the completion margin, rather than more consumers seeking to complain. We do not find any change in the number of users arriving to the FTC’s desktop or mobile complaint sites, increases in Google searches leading to the FTC’s website, or significant increases in complaining to alternatives, such as calling the FTC to report fraud or complaining to other government agencies or the BBB.

The quality of the complaint records also improved after the redesign. Most data fields are optional when lodging a complaint even though they provide valuable information to policymakers. We find substantial increases in the share of complaints that voluntarily included consumer geographic information, age, and the name of the company involved.

Increasing the perceived benefits and reducing the costs of complaining can create two countervailing effects. An easier complaining process may mean that consumers with less severe problems begin to complain. On the other hand, it may be difficult for disadvantaged consumers to express their voice when it is difficult to complain, so more such disadvantaged consumers might complain after the redesign.

We assess how the redesign affected the characteristics of complaining consumers, and find some support that vulnerable consumers are more likely to complain after the redesign, in [Section 6](#). After the redesign consumers write complaints that are 36% shorter than before and also easier to read. These changes are consistent with less sophisticated consumers induced to complain by the redesign. We also examine measures of the zipcode level probability that fraud victims complain based on local demographics calculated in [Raval \(2020b\)](#), and find that the redesign induced more complaints from communities less likely to complain pre-change.

On the other hand, we do not find substantial differences across demographic groups, defined either by race/ethnicity, age, or sex. For example, the redesign did not close the large disparities in complaining between white and non-white consumers found in [Raval \(2020b\)](#); if anything, we

find smaller increases for Black and Latino consumers than white and Asian consumers.² These findings are consistent with Raval (2020b)’s argument that racial disparities in complaining are due to feelings of social alienation, rather than difficulties in complaining.

In Section 7, however, we find some evidence that the website redesign induced complaints about less severe problems than before the redesign. The share of consumers reporting a monetary loss did not change. However, consumers were less likely to use words related to an online purchase in their complaint after the redesign, which is consistent with smaller losses.

We take two machine learning text based approaches to examine how the issues that consumers complain about change with the redesign. First, since the categorization of the issues itself changed with the redesign we cannot measure the effect on the categories directly. Instead, we fine tune a large language model to predict these categories using data on complaint text post-redesign. We then predict the probabilities of each category before and after the redesign. We find the largest increases in complaints to be about telemarketing and imposter scams; these issues tend to expose many consumers to the scam (i.e., receiving a phone call) but only a few lose money. Such issues are exactly the topics for which complaints are primarily based on altruism – to warn other consumers – rather than increasing the likelihood of recovering losses.

Second, we use a topic modeling approach to assign complaints to a large set of topics, and then examine how these topics change with the redesign. Consistent with the predicted categories, we find several imposter related topics increase after the redesign, compared to only one topic related to online shopping. However, we also find increases in several topics related to identity theft, which should have been filed on the specialized *identitytheft.gov* FTC website. Here, the redesign likely meant that some consumers substituted to the website that became easier to use.

Consumer reports on fraud have all the hallmarks of an undersupplied public good. Understanding who voluntarily contributes to public goods has long been a focus of research (Fischbacher and Gächter, 2010; Gächter et al., 2010; Bergstrom, Blume and Varian, 1986; Chan, Mestelman and Muller, 2008; Chaudhuri, 2011). In this paper we study how the characteristics of contributors and contributions to this particular public good changed as a result of this government effort.

We also contribute to a literature examining how consumers voice their opinions in markets. We

²Using data on consumers affected by nine consumer protection law enforcement actions, Raval (2020b) found that residents of heavily Black and Latino areas who lost money in the cases were about half as likely to complain as residents of heavily White areas.

directly relate to consumer complaints about fraud. So far, this literature has focused on identifying the types of consumers affected by frauds and scams (Anderson, 2019; Deliema, Shadel and Pak, 2020; Raval, 2021), as well as those who choose to complain (Anderson, 2021; DeLiema and Witt, 2021; Gans, Goldfarb and Lederman, 2021; Raval, 2020*a,b*; Grosz and Raval, 2022). A broader literature examines consumer reviews online, including how demand responds to reviews (Luca, 2011; Lewis and Zervas, 2020), firms faking reviews (Anderson and Simester, 2014; He, Hollenbeck and Proserpio, 2022; Luca and Zervas, 2016; Mayzlin, Dover and Chevalier, 2014) and consumers selecting into reviewing (Nosko and Tadelis, 2015; Fradkin and Holtz, 2023). Both complaints and reviews provide examples of how disclosing additional information about firms can affect markets (Jin and Leslie, 2003; Tadelis and Zettelmeyer, 2015).

We also contribute to a literature on hassle costs and targeting that has examined how the types of consumers induced into a program varies with the difficulty of signing up for the program (Akerlof, 1978; Nichols and Zeckhauser, 1982). This literature largely focused on disadvantaged groups applying to government programs (Currie, 2006; Kleven and Kopczuk, 2011).³ Some of the changes from the redesign can be seen as reducing the hassle costs of complaining. In marketing, Dukes and Zhu (2019) examines how firms can optimally design a CRM system through manipulating the degree of hassle costs.

Finally, a large literature in marketing and computer science has focused on how the design of web interfaces affects how users interact with a site. Much of this work focuses on “dark patterns”, in which a website seeks to manipulate consumers to their detriment, such as making it difficult to cancel a recurring subscription (Luguri and Strahilevitz, 2021). Here, in contrast, the FTC worked to make its complaint site easier to use for consumers. Our work is complementary to researchers seeking to improve disclosures of advertisements and convey useful information to consumers.

2 Background

Consumers hoping to report fraud or scams have several ways that they can complain to policymakers. Consumers can call 1-877-FTC-HELP or visit the FTC’s website, originally called “Complaint

³Economists have examined the selection process for the Earned Income Tax Credit (Kopczuk and Pop-Eleches, 2007), disability insurance (Foote, Grosz and Rennane, 2019; Parsons, 1991), unemployment insurance (Ebenstein and Stange, 2010), and public health insurance (Aizer, 2007).

Assistant” and available at www.ftccomplaintassistant.gov. The FTC added a mobile version of this website in 2014.⁴ The FTC invites complaints about fraud, scams, and other bad business practices such as violations of consumer protection statutes and regulations.⁵ Reported complaints span many topics, with the most common complaints concerning imposter scams, unwanted or spam calls, texts, and emails, and fraud while shopping online.

Besides the FTC, consumers can complain to many government agencies or non-governmental organizations. In this paper, we use data from the two largest: the Better Business Bureau (BBB) and Consumer Financial Protection Bureau (CFPB). The CFPB accepts complaints about financial products, such as credit cards, debt collection, payday loans, prepaid cards, and money transfer services. The BBB is a non-profit organization that has accepted complaints about companies for decades. The Consumer Sentinel Network, a consortium run by the FTC, collects complaints from the FTC, BBB, CFPB, and many other sources.

On October 22nd, 2020, the FTC launched a new website to collect consumer complaints, renamed as [ReportFraud.ftc.gov](https://reportfraud.ftc.gov), and available in online and mobile versions. The new website replaced the old Complaint Assistant system.⁶ The FTC cited increases in fraud reports relative to the previous year, as well as a focus on better reporting on the incidence of fraud and scams across diverse communities, as reasons for the change ([Federal Trade Commission, 2021a,b](#)).

2.1 Website Changes

In response to several issues that users of the previous site had noted in usability studies, the FTC’s redesign attempted to increase complaints through two main channels. First, the FTC emphasized the public good nature of complaining to increase the self-perceived benefits of filing a complaint. Second, the FTC made the site easier to use in order to reduce the costs of filing a complaint, as users had criticized the complaint categorization, poor visual design, and a lengthy flow. Below, we describe the issues the FTC identified and the resulting changes from the redesign. [Appendix A](#) provides more details on the problems the redesign sought to fix, as well as the specific changes made to the site.

⁴See <https://www.ftc.gov/news-events/news/press-releases/2014/05/file-consumer-complaint-ftc-your-mobile-device>.

⁵See the FTC’s FAQ available at <https://reportfraud.ftc.gov/faq> for its advice on what topics to report.

⁶See <https://www.ftc.gov/news-events/news/press-releases/2020/10/ftc-announces-new-fraud-reporting-platform-consumers-reportfraudftcgov>.

In usability testing, consumers noted that they felt disconnected from the FTC and US government. Prior to the redesign, one of the first screens seen when filing a complaint stated that the FTC cannot resolve individual complaints, which made the whole exercise seem a waste of time to many consumers. In addition, users felt that the FTC did not seem like it cared about the consumer, did not provide information to help the user protect themselves from other scams, and did not explain what the next steps were after the complaint was filed.

In response, the new redesign heavily emphasized that consumers were contributing to a public good. The new homepage (seen in [Figure 1](#)) has the tagline “Report to help fight fraud!” over a stylized community of houses and walking residents, and an outline of a shield representing how the report can help shield the community from fraud.⁷ Below, the website states “Protect your community by reporting fraud, scams, and bad business practices.” Scrolling further down, the main landing page provides the main steps after filing a complaint – the FTC would provide consumers next steps to avoid fraud, and the FTC would use the complaint to help stop fraud by sharing the information with law enforcers. A graphic emphasizes how the FTC shares the report with law enforcement agencies across the country. When consumers complete their report, the new website gives them next steps on how to resolve their specific issue.

The remaining issues that users brought up were all different ways in which the FTC’s complaint website was difficult for consumers to use. Consumers first assign their complaint to a category of consumer protection issues; [Figure 1](#) provides the old and new category assignment flow. Focus group users complained that it was difficult and stressful to do this, because there were too many categories, that the categories available were unclear, and that often there was no “right” category for their problem. The redesign developed an “accordion” style approach with a few, sharply distinguished categories to start with, and then a few subcategories that appear after the main categories. The amount of text for each category was sharply reduced for readability, and a “something else” catch-all category provided a category for consumers with unique issues.

Second, consumers complained about the visual design of the website. The previous website was seen as too cluttered and content heavy, with too small and inconsistent fonts, and so repelled the reader. In response, the FTC reduced the amount of content (i.e. words) on the website as

⁷The website, including in its name Report Fraud, emphasize “reporting” rather than “complaining”; reporting is more psychologically neutral and may also indicate a broader goal than simply harms to the individual.

Figure 1: Landing Page and Complaint Categorization

(a) Complaint Assistant (Old Website)

(b) ReportFraud (New Website)

well as unnecessary links to other websites, increased the font size, used fonts that were easier to read, hid content by gating potentially unnecessary questions through Yes/No initial questions, and developed a consistent, clean design overall.

Third, consumers found that the seven step process to file the complaint was too long and daunting, and found it difficult to navigate the website to either file a complaint or go back to the homepage. In the redesign, the seven steps were consolidated into two steps; Figure 2 displays the original and new website flow. The open ended text field where consumers can write the story of what happened to them was moved to the first step, rather than the sixth step; many users wanted to immediately tell their story and were put off by a long wait to do so. A running slider shows consumers how far they have gone in the process, and clear back and forward buttons show the navigation. In addition, the main landing page (seen in Figure 1) had a clear “Report now!” button, as well as several other links for consumers to begin their complaint.

The new ReportFraud website was launched on October 22, 2020, after which users visiting the previous website were automatically redirected to the new site. The FTC did not promote its new

Figure 2: Complaint Flow

(a) Complaint Assistant (Old Website)

1 Before You Begin

2 How It Started

3 Did You Lose Money

4 Who Is Your Complaint About

5 About You

6 What Happened

7 Review Your Complaint

Did you experience any of the following? Please select all of these that apply:

- ☐ I received a defective or poor quality product.
- ☐ I have an issue with a mobile application (app).
- ☐ I have an issue related to browsing the internet on my device.
- ☐ I have an issue with my mobile device data plan or mobile device bill.
- ☐ I have an issue with a mobile payment.
- ☐ The company did not honor its refund policy.
- ☐ The company failed to honor a warranty.
- ☐ My phone service provider was switched without my permission.
- ☐ Other

Previous Continue

1 Before You Begin

2 How It Started

3 Did You Lose Money

4 Who Is Your Complaint About

5 About You

6 What Happened

7 Review Your Complaint

How It Started

Fill in what you know. If you don't know or if it doesn't apply, leave it blank.

When did this begin (mm/dd/yyyy)?

How were you initially contacted by the person/company?

How did you respond to the initial contact?

Previous Continue

1 Before You Begin

2 How It Started

3 Did You Lose Money

4 Who Is Your Complaint About

5 About You

6 What Happened

7 Review Your Complaint

Did You Lose Money?

Fill in what you know. If you don't know or if it doesn't apply, leave it blank.

Did you pay or send money?

How much money did you pay or send?

What method did you use to pay or send the money?

Previous Continue

1 Before You Begin

2 How It Started

3 Did You Lose Money

4 Who Is Your Complaint About

5 About You

6 What Happened

7 Review Your Complaint

Who Is Your Complaint About?

Fill in what you know. If you don't know or if it doesn't apply, leave it blank.

Which company or government agency did the caller say they were with?

Do you have any other information about them (phone number, website, etc.)?

Previous Continue

1 Before You Begin

2 How It Started

3 Did You Lose Money

4 Who Is Your Complaint About

5 About You

6 What Happened

7 Review Your Complaint

About You

It's up to you how much personal information to provide. Having your contact information will make it easier if we need to get more information about your complaint. Please read our [Privacy Policy](#) to learn more.

Are you filing a complaint on behalf of someone else?

First Name: Last Name:

Street Address: City:

Country: State: Select A State:

Zip Code: Phone Number:

Email Address: Age Range: Select An Age:

If you are filing on behalf of your small business or organization:

Your Small Business or Organization Name:

Are you a member of the U.S. Armed Forces or a dependent?

Previous Continue

1 Before You Begin

2 How It Started

3 Did You Lose Money

4 Who Is Your Complaint About

5 About You

6 What Happened

7 Review Your Complaint

Please tell us what happened.

A thorough and complete statement is very important for helping the FTC and law enforcement make the most of your report. Please refer to the suggestions on the right for guidance of what to include and what not to include.

Comments:

You have 3500 characters remaining.

Previous Continue

Suggested details to include:

- What government agency did they say they were affiliated with?
- What was the reason they gave for contacting you?
- Were you offered something? What was it?
- What did they tell you to do?
- Were there any unique characteristics about the tactics or the person contacting you?

Please do not include:

- Sensitive information such as SSN, DOB, driver's license numbers, account numbers, medical history, etc.

Please review your complaint and click Submit

Please review the information and ensure that no personal or sensitive information such as social security date of birth, financial accounts or credit/debit card numbers, driver license number, detailed health or medical history or similar sensitive information is included.

(b) ReportFraud (New Website)

Start

Submit

Report details

Please share as much as you know. The details help law enforcement investigations.

Did you send the scammer payment of any kind? Yes No

How much money did you pay the scammer in total?

How did you pay or send the money?

When did you most recently pay or send money (mm/dd/yyyy)?

How did it start (ex. how did they first contact you, where did you see an ad)?

Details about the scammer

Please share as much as you know. The details help law enforcement investigations.

Which government agency did they pretend to be?

Name of the person you dealt with Their First Name Their Last Name

Do you know any other information about the scammer (phone, website, etc.)? Yes No

Comments

Describe what happened.

Tell us what happened in your own words. Include specific details you remember. Do not include any sensitive information, such as SSN, DOB, driver's license numbers, account numbers, medical history, etc.

0 characters of 3500 used

Back

Continue

Start

Submit

About you

Are you filing this report for someone else? Yes No

Your details

First Name Last Name

Country or region

Street Address 1 (street address, PO Box) Street Address 2 (apartment, suite, unit, building, floor)

City State/Province/Region

Zip/Postal Code Phone Number Phone Type Email Address

Zip/Postal code, phone number, phone type, and email are required if you want to later update your report online.

Age Range

Military Status

Military Rank Military Branch

Are you filing on behalf of your small business or organization? Yes No

Back

Submit

website ahead of time, so consumers did not anticipate that the user interface would be different from one day to the next. The FTC did, however, promote the new website after the redesign, including with a press release the same day. In addition, the FTC has undertaken ongoing outreach efforts to promote the new website, especially in communities with known under-reporting of fraud and high rates of fraud (Federal Trade Commission, 2021b). These efforts include online videos and blogs, social media posts, outreach to national and local partners, and paid ads. Five months after the redesign, in March 2021, the FTC began another effort to further increase reports from lower-income communities with the launch of its Community Advocate Center. This program provides specialized links to legal services providers and encourages reports from the providers and the people they serve (Kaufmann, 2021).

3 Data

We use data on complaints from the Federal Trade Commission, the Consumer Financial Protection Bureau, and the Better Business Bureau. These three sources account for approximately three quarters of all the complaints contained in the Consumer Sentinel Network consortium of complaints (Raval, 2020a).⁸

Each complaint in the Consumer Sentinel data includes information about the consumer and the content of the complaint. We observe the consumer’s name, zip code, city, state, country, and broad age bands, if the consumer included this information. We also observe the date the complaint was filed, broad categories of complaints, and the open-ended text of the complaint itself. For FTC complaints, we are able to separately identify those filed on a laptop or desktop computer (which we refer to as “desktop”), on a mobile device, or over the phone. We only observe complaints that were completed and submitted; that is, we do not observe any information if the consumer started, but did not submit, their complaint.

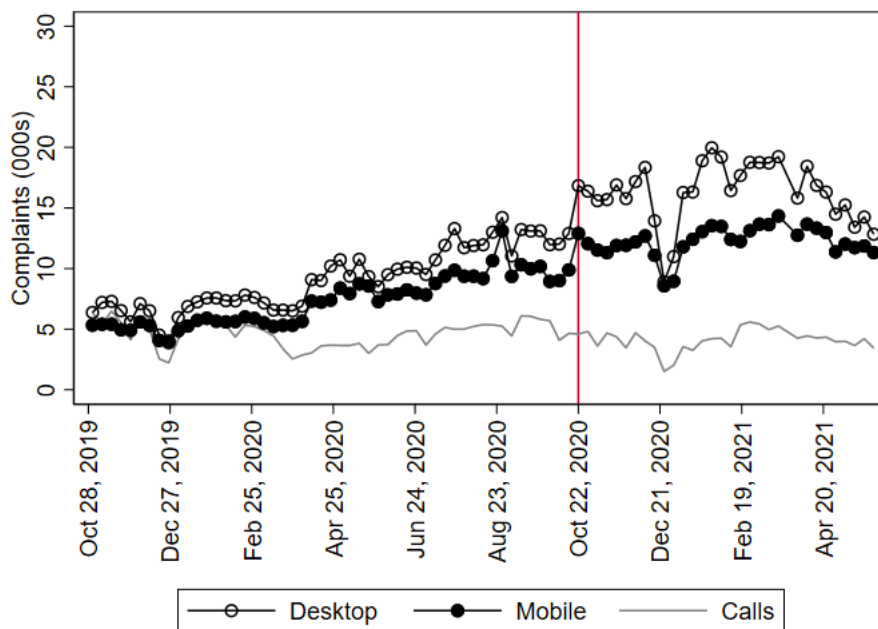
Figure 3 shows the weekly number of complaints to the FTC by channel between October 31, 2019 and June 6, 2021. In the first week of data shown in the figure, late October of 2019, the FTC received approximately 12,000 complaints across its desktop and mobile platforms, and an additional 6,400 complaints over the phone. Over time, the desktop and mobile complaints rise

⁸See <https://www.ftc.gov/enforcement/consumer-sentinel-network/reports> for the Consumer Sentinel Data Book, which contains further detail on the Consumer Sentinel and statistics on the complaints included in it.

in a parallel fashion compared to the complaints over the phone. In addition, we see a spike in complaints in the first week of April 2020, as the full effect of the coronavirus pandemic began to take hold, and a decline in complaints during the Christmas and New Year’s holidays season.

The week of the FTC’s redesign is marked by a red vertical line. Complaints for desktop and mobile sources jump significantly the week of the redesign. In contrast, there is no similar jump in FTC phone complaints. [Figure OA1](#) depicts the same graph for the BBB and CFPB, for which there is no jump the week of the FTC’s redesign either.

Figure 3: Complaints by Week to the FTC



Notes: The figure shows the number of complaints, in thousands, logged each week between October 26, 2019 and June 19, 2021, across the three FTC sources. The weeks are defined as starting on Thursdays, since the website redesign was a Thursday. The vertical line shows the date of the website redesign.

4 Empirical Strategy

To analyze the short-term effects of the website redesign, we estimate a regression discontinuity (RD) in time. RD designs with time as the running variable are a common empirical strategy in marketing, where different user interfaces can be implemented quickly and unexpectedly ([Hausman and Rapson, 2017](#)).

Consumers did not anticipate that the ReportFraud website would change design overnight

because the change in the website design was not advertised or announced ahead of time by the FTC. Thus, users wishing to log in a complaint on October 21 and October 22—the days before and after the redesign—would have unexpectedly experienced different user interfaces. We assume that rates of fraud and consumers’ willingness to report fraud did not see similar dramatic breaks from one day to the next.

In a regression discontinuity design, we must choose the order of the local polynomial in the running variable (here, date) that we use to control for trends away from the discontinuity. [Pei et al. \(2022\)](#) show that increasing the order of the local polynomial results in a bias-variance tradeoff: higher order polynomials reduce the bias but increase the variance. We follow [Pei et al. \(2022\)](#) to determine the optimal polynomial order p by estimating the asymptotic mean squared error (AMSE) under different polynomial orders. [Table OA2](#) shows the AMSE for the different sources of complaints for polynomials of orders 1 through 4. Based on these results we use the local linear ($p = 1$) for our main specifications. In [Table OA3](#), we show that our main estimates of the regression discontinuity effect are not sensitive to the choice of p .

We estimate the following empirical specification:

$$y_t = \beta Post_t + \gamma_1(t - C, t \geq C) + \gamma_2(t - C, t < C) + g(DOW_t) + \epsilon_t, \quad (1)$$

where y_t is the number of complaints with a particular attribute on each day t . We use data on daily complaints for the 60 days before and after the date of the website change, from August 23, 2020, to December 21, 2020, and bin complaints by day. We do not extend past December 21 because the beginning of the holiday season introduces a dramatic trend break in complaints. The variable $Post_t$ indicates whether the date is after the website change, and β is the coefficient of interest. The coefficients γ_1 and γ_2 control for the days since the date of the redesign C on either side of the cutoff through a polynomial of order 1. To account for differences in complaint rates over the course of a week, we also control for day-of-the-week effects through $g(DOW_t)$.

The coefficient β captures the change in complaints on the date of the redesign. Because the redesign was not announced prior to the date, we do not believe that consumers changed their complaint behavior—to the FTC or to other sources—in anticipation of the change. However, the FTC did begin a publicity campaign, including a press release, on the day of the redesign. Thus,

by capturing the change in complaints at the time threshold, β combines the effect of the website’s improved design as well as the immediate effects of the short-term publicity campaign itself. Our approach does not measure, however, any changes in trends in complaint behavior over time due to the FTC’s continued publicity campaign and outreach efforts.

Any changes due to the redesign could be because existing consumers are more likely to complete complaints, or because of changes in the number of users visiting the website. We examine these channels in detail in [Section 5.3](#).

5 Do Complaints Increase After the Redesign?

A primary goal of the FTC’s website redesign was to increase the number of complaints submitted. We find substantial increases in the quantity and quality of complaints. These increases are because consumers are more likely to finish complaining, rather than more consumers seeking to complain.

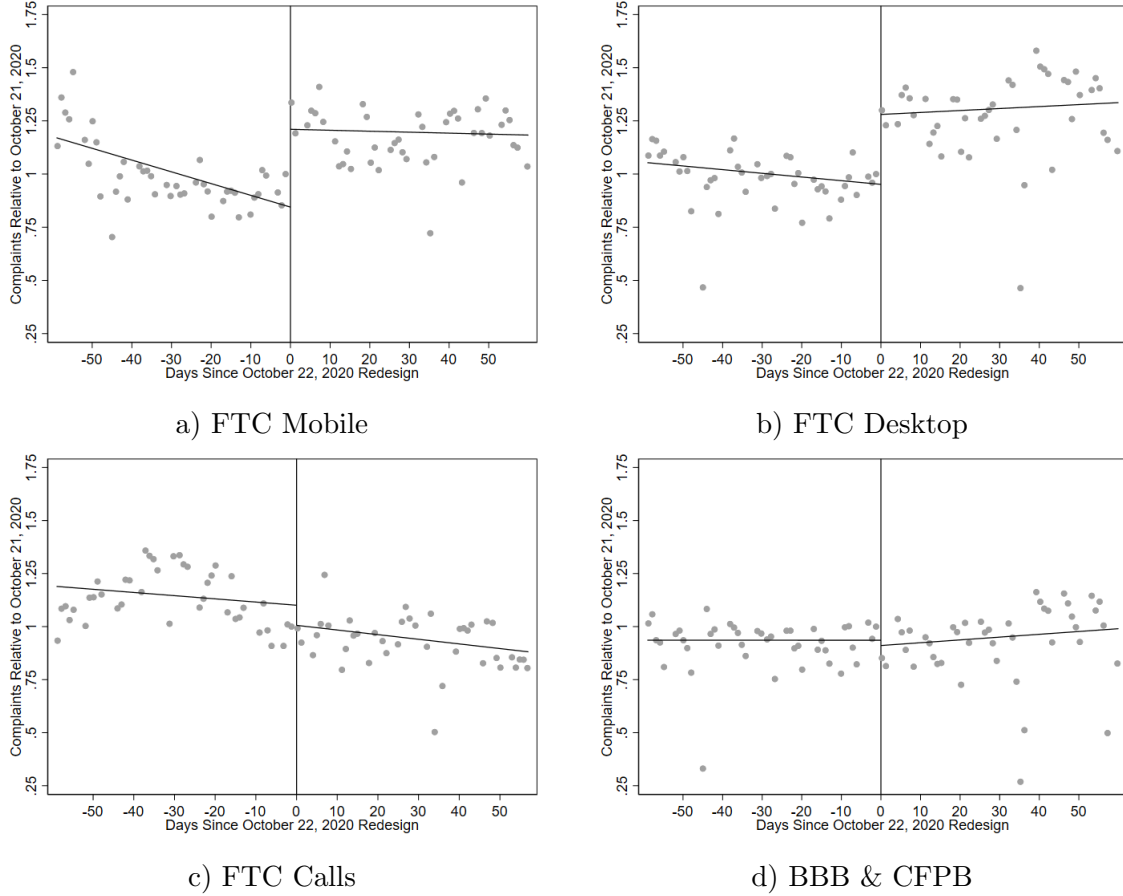
5.1 Quantity of Complaints

We examine data on complaints filed to the FTC through three sources—desktop, mobile, and phone—as well as complaints filed to the BBB and CFPB. FTC desktop and mobile complaints were directly affected by the redesign, while FTC phone complaints and BBB and CFPB complaints were not.

The FTC phone complaints provide a comparison for consumers with complaints that would be appropriate to file with the FTC. The complaints filed with the BBB are broadly similar to the FTC in terms of the types of industries and scams ([Raval, 2020a](#)), although the BBB is not a government agency. The CFPB is a sister federal agency, although its complaints are limited to financial topics and so overlap less with FTC complaints.

[Figure 4](#) displays the number of daily complaints by source 60 days before and after the website change. In order to show the regression discontinuity, we also display estimates of a first degree polynomial with day of the week effects for the periods before and after the change. Each panel is adjusted to be expressed in shares relative to October 21, the date before the redesign, which is set to 1. For example, a marker at 1.25 means that there were 25% more complaints that day than on October 21.

Figure 4: RD Estimate of Website Redesign on Number of Complaints



Notes: The figure shows the daily number of complaints report to each of the three FTC sources and to the CFPB and BBB, from 60 days before and after the FTC’s website redesign on October 22, 2020. For each panel, the number of complaints are expressed relative to the number of complaints on the day prior to the redesign, October 21, 2020, which are set to one. The vertical bar shows the date of the redesign. The fitted lines are an RD estimate that includes a first-degree polynomial and controls for the day of the week.

The number of FTC mobile and desktop complaints clearly jump at the date of the website redesign. In contrast, the FTC’s phone complaints have a smaller and not statistically significant decline, while the BBB and CFPB complaints are flat.⁹

Table 1 shows the coefficient estimates that correspond to the figure, where the number of complaints is expressed in logs. FTC online complaints—combining desktop and mobile complaints—increased by 28% due to the change in the user interface, with a slightly higher jump for desktop (31%) than mobile (26%) complaints. The effect on FTC calls is negative, but not statistically significant, at 9%. Similarly, the coefficients are smaller and not statistically significant for the BBB and CFPB. Table OA3 shows similar results using polynomials of different orders. Table OA4

⁹Figure OA2 shows the total number of complaints, and Figure OA3 disaggregates the BBB and CFPB.

also shows virtually identical results using a narrower window of just 30 days on either side of the redesign date.

Table 1: RD Estimate of Website Redesign on Number of Complaints

	(1) FTC Online	(2) FTC Mobile	(3) FTC Desktop	(4) FTC Calls	(5) CFPB	(6) BBB
RD Estimate	0.282*** (0.0379)	0.307*** (0.0395)	0.256*** (0.0357)	-0.0856 (0.0456)	-0.00606 (0.0452)	0.0255 (0.0677)

Notes: The table shows estimates of [equation \(1\)](#), where the dependent variable is the log number of daily complaints. The specification includes a first degree polynomial and controls for day of the week. FTC Online refers to the sum of FTC mobile and desktop complaints. The data include complaints from 60 days before and after the FTC’s website redesign on October 22, 2020. Robust standard errors clustered at the daily level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5.2 Quality of Complaints

We then investigate how the quality of complaints changed as a result of the website redesign, as a key goal of the redesign was to make it easier for consumers to provide information in complaints. Our proxy for complaint quality is whether consumers input optional personal information in complaints, including the location that the consumer lives in, their age, and details of the company that defrauded them.

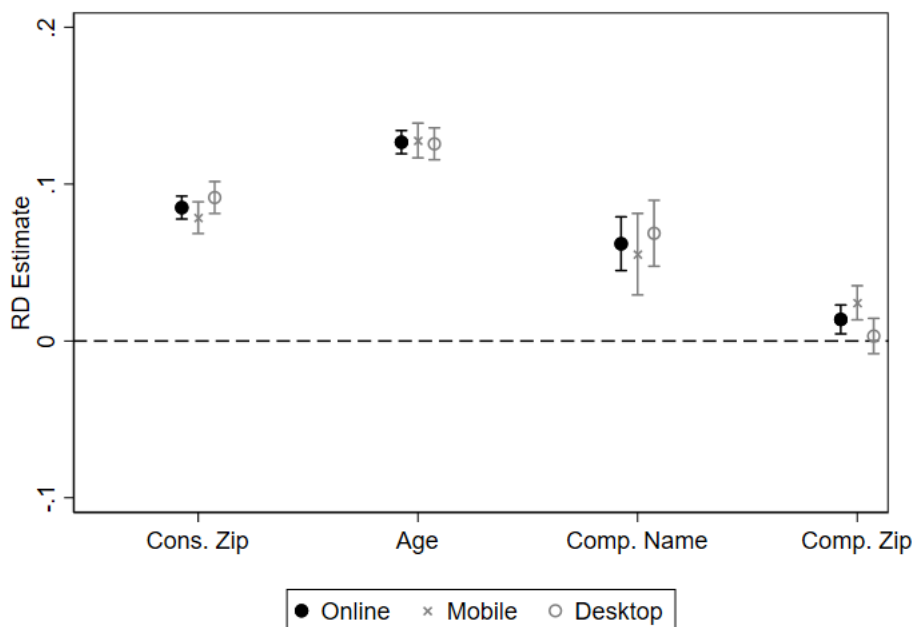
This information is helpful for policymakers for several reasons. First, policymakers are interested in the demographics of complainants; age is an important such characteristic and consumer location allows one to impute race/ethnicity and examine local area demographics. Second, information on the companies or individuals defrauding consumers is necessary for enforcement against bad actors. Finally, policymakers may want to contact consumers to gain more information on their problems and submit evidence in court proceedings.

We find substantial increases in the quality of complaints after the website redesign. [Figure 5](#) shows RD point estimates and 95% confidence intervals on the likelihood that the consumer provided different pieces of information in each completed complaint. After the website redesign, the share of consumers reporting their zip code rises by 9 percentage points and those reporting their age rises by 13 percentage points. Consumers were also almost 6 percentage points more likely to report the name of the company or individual who had defrauded them. The redesign had a sta-

tistically significant but small effect (1.6 pp) on the share of consumers who provided information on the location of the offending company or individual.

These increases in quality likely reflect the change in flow with the redesign. On the old website, consumers provided information on the company that defrauded them at Step 4 and about themselves (including age and demographics) at Step 5, and could only provide a narrative of their issue afterwards on Step 6 (see [Figure 2](#)). With the new website, consumers provided information about the scammer at Step 1, with the self-narrative directly underneath, and about themselves at Step 2. We suspect that many consumers wanted to tell their story first and so skipped through some of the requested information in the intervening steps. We likely find smaller effects for the company variables than personal variables because not all consumers will know the address or name of the scammer that defrauded them.

Figure 5: RD Estimate of Website Redesign on FTC Complaint Quality



Notes: The figure shows point estimates and 95% confidence intervals for estimates of [equation \(1\)](#), where the dependent variable is the fraction of daily complaints that included a zipcode, consumer's age, the defrauding company's name, or the defrauding company's zipcode. Robust standard errors clustered at the daily level. The corresponding table is [Table OA7](#).

5.3 Mechanisms for Increases in Complaints

The increase in complaints documented above could happen because existing users of the website were more likely to complete the process of filing a complaint, or because new users decided to visit the website and complain. We find evidence that consumers increased their rate of completion of complaints, and that the number of users of the website did not increase in the short run. These results support the RD identifying assumption that only the website itself changed at the threshold date.

First, we analyze data from Google Analytics on the number of users and new users per day on the FTC’s website. Because we also know the total number of complaints per day, we estimate the completion rate as the number of complaints each day in the Consumer Sentinel data divided by the number of total users from Google Analytics. In [Table 2](#), we report RD estimates from the website redesign of the change in log total users and new users (columns 1 and 2), and the completion rate (column 3). Here, users are the total number of people who visited the website in that day, and new users the number of people who had never previously visited the website who visited on that day. The number of total users or new users did not change in a statistically significant way. [Figure OA4](#) shows the graphical evidence for these two estimates. However, the completion rate rose by 7 percentage points.

We have limited information on user behavior before and after the redesign. [Table OA1](#) shows average session time and time on page for the pre- and post-redesign periods. The session duration is almost the same, while the average time on the page is actually longer after the redesign. Google Analytics calculates time on page as zero if a user closes the window before moving on to another page, which accounts for the differences between the session duration and time on page metrics. All told, these limited metrics support the idea that users actually spent longer on the website after the redesign, presumably making it farther along the process to filing a complaint.

Second, the press surrounding the redesign could have induced new users to visit the website and complain. We thus examine the effect of the FTC’s next press release about the ReportFraud website after the redesign. On March 3, 2021, the FTC announced a new campaign to increase reporting of fraud in low-income communities.¹⁰ [Table OA6](#) shows that, overall, there was not a

¹⁰See <https://www.ftc.gov/news-events/news/press-releases/2021/03/ftc-launches-initiative-encourage-lower-income-communities-report-fraud>.

Table 2: RD Estimate of Website Redesign on FTC Users and Completions

	(1)	(2)	(3)
	Total Users (log)	New Users (log)	Completion Rate
RD Estimate	-0.0628 (0.0442)	-0.0602 (0.0511)	0.0689*** (0.00988)

Notes: The table shows estimates of [equation \(1\)](#). In columns 1 and 2 the dependent variable is the log number of total users and new users. In the final column the dependent variable is the fraction of started complaints that were completed. Robust standard errors clustered at the daily level. $*p < 0.05$, $**p < 0.01$, $***p < 0.001$

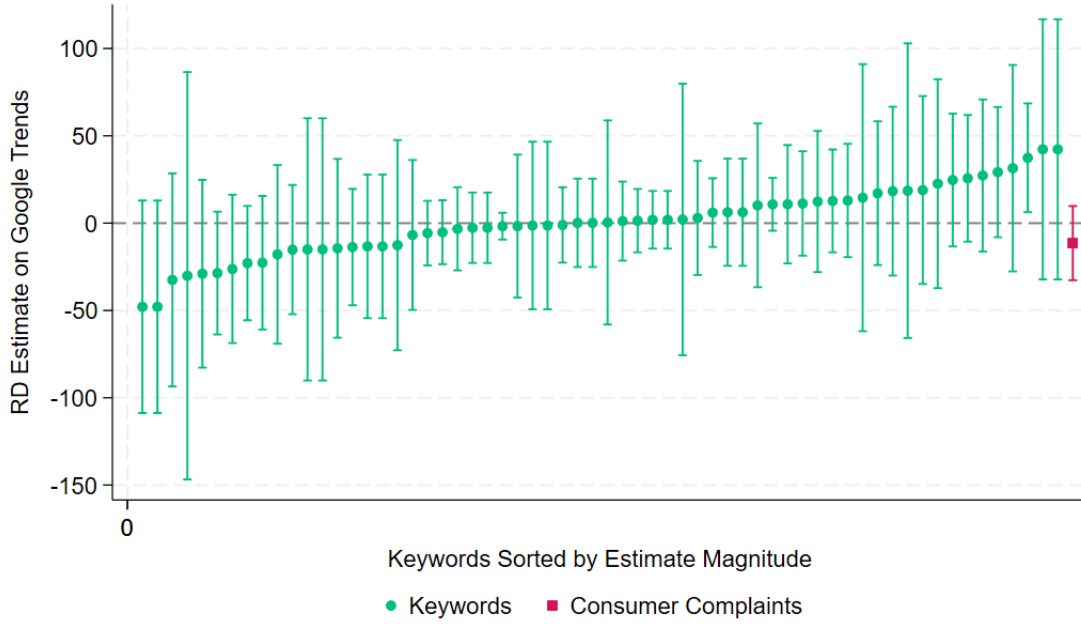
statistically significant increase in FTC online complaints overall, at 4%, although the effect was statistically significant for mobile complaints at 7%. This exercise shows that the effect of the overall redesign was much larger than the short run effect of the announcement of a promotional campaign to increase reporting.

Third, we examine Google Analytics data on web searches that lead consumers to the FTC’s complaint website. We have data on the keywords on Google that consumer use to reach the FTC’s website as of November 2023. We can match these keywords to weekly data on Google trends, and so examine how “demand” for complaints changed at the time of the website redesign. We look at all keywords with a minimum volume of at least 50 searches, and for which the FTC’s complaint website is the top ranked organic link on Google. The top 5 keywords are “ftc complaint”, “scam report”, “report scam”, “report scammer”, and “report fraud”. Since the keywords for which the FTC’s complaint website is the top link could have changed with the redesign, we also examine Google trends for the category of “Consumer complaints” in the US.

[Figure 6](#) shows the RD estimate for each of the keywords, as well as for the “consumer complaint” category, along with a 95% confidence interval with a Bonferroni correction for multiple hypothesis testing. The estimates use nine weeks of weekly data before and after the redesign, along with a linear polynomial.¹¹ Almost none of the results are statistically significant, and most are small in magnitude. In fact, the average estimate is 0.30 for trend values that range from 0 to 100; the effect for the consumer complaint category is *negative*, at -26.9, and not statistically significant. Together, these results provide further evidence that the effect of the redesign comes primarily through increases in completion rates among consumers who would have already navigated to the FTC’s website.

¹¹Results with a longer or shorter time window and polynomials of different orders yield similar results. [Table OA5](#) shows the individual point estimates and standard errors.

Figure 6: RD Estimate of Website Redesign on Google Keyword Searches



Notes: The figure shows point estimates and 95% confidence intervals for RD estimates of how the Google Trends popularity for 65 different keywords changed in the 10 weeks before and after the website redesign. Data are at the weekly level, and the specification includes a first degree polynomial. Coefficients are sorted by their magnitude. The confidence intervals include a Bonferroni correction for multiple hypothesis testing. The effect for the Consumer Complaints Category is in red as the last confidence interval in the figure.

6 How do the Characteristics of Complaining Consumers Change with the Redesign?

A major goal of the website redesign was to improve complaint rates among groups that are less likely to complain. In this section, we examine complaint rates by demographic groups. We largely find small and insignificant differences across demographic groups, although we see a decline in the sophistication of the writing style of complainants and increases from zip codes less likely to complain before the redesign.

6.1 Demographics

We summarize our findings on differences in the regression discontinuity effect by demographic groups; [Appendix E](#) provides more details on our estimates.

We find fairly similar increases in complaints across age groups, with a 40% increase for con-

sumers aged both under 40 and 60+. These effects are larger than the overall increase of 28% because more consumers report their age after the redesign. While the increase in complaints at the regression discontinuity is similar across age groups, complaints for older adults, but not younger adults, trend upwards after the redesign. Because the reporting of age increases with the redesign, we also infer age using the age distribution of first names from vital statistics data and obtain similar estimates of age effects as in our main estimates.

We examine race and ethnicity by estimating race probabilities based on consumers’ first and last names, which almost all consumers provide. We find similar increases post-redesign across race/ethnicity groups, with a 31% increase from white consumers, compared to a 27% increase for Black consumers, 24% for Latino consumers, and 34% for Asian consumers. If we also use consumers’ location (zipcode) to estimate race probabilities through the BIFSG algorithm (Voicu, 2018), we find slightly smaller increases for Black (20%) and Hispanic (22%) consumers, compared to white (32%) and Asian (33%) consumers.

Finally, we examine whether increases in complaints vary by sex using consumers’ first names and counts of sex by first name from the SSA. We find slightly higher increases in complaints from women (32%) compared to men (28%), but we cannot reject the hypothesis that these effects are the same.

6.2 Victim Likelihood of Complaining

The results above examined different demographic groups separately. Raval (2020b) examined how several zip code level demographic variables affected the likelihood of complaining by comparing complaints and victims for the same consumer protection case across several cases in the pre-redesign period. These demographics included median income, the share of consumers with a college education, median household size, and the share of consumers in different race/ethnicity groups. Using these estimates, Raval (2020b) developed a set of weights designed to be the inverse of the propensity to complain (i.e, predicted complaint to victim ratio) based on those demographics in order to “correct” complaint data for differences in the likelihood of complaining across demographic groups. The median zip code was set to 1.

In Table 3, we examine how these weights change with the redesign. The average weight increases by about 9% after the redesign. Since the average weight is the inverse of the average

likelihood of complaining for victims estimated based upon demographics in the pre-redesign period, we conclude that the redesign induced more complaints from communities less likely to complain after fraud victimization.

Table 3: RD Estimates (Percentage Change), Victim Complaint Weights

	(1) Online	(2) Mobile	(3) Desktop
RD Estimate	0.0882*** (0.00711)	0.0792*** (0.0112)	0.0971*** (0.00831)

Notes: The table shows estimates of [equation \(1\)](#). The dependent variable is the log of the mean daily victim complaint weights at the zipcode level from [Raval \(2020b\)](#). Robust standard errors clustered at the daily level. $*p < 0.05$, $**p < 0.01$, $***p < 0.001$

6.3 Computer and Internet Access

Next, we examine whether the website redesign disproportionately affected consumers with better internet access. Here, we estimate a RD at the day-zipcode level and interact the "post-redesign" variable with either the share of consumers with broadband access or computer access at the zipcode level from the 2020 Census.¹² In [Table 4](#), we show the estimates of the interaction term for both the broadband access specification and computer access specification, where the interaction effect would reflect a rise from a 0 to 100% share of consumers with broadband or computer access.

We only find significant interaction effects for desktop complaints. The effect of the redesign increases by 0.83 percentage points for a 10 percentage point increase in broadband access, and by 1.1 percentage points for every 10 percentage point increase in computer access. However, since mobile complaints increase more in areas with worse internet access, we find smaller and insignificant increases for all online complaints with greater broadband or computer access. These reduced effects may reflect substitution between the mobile and desktop channel based on the degree of Internet access.

¹²In the median zipcode, 77% of consumers had access to broadband and 87% had access to computers. The corresponding shares for consumers were 67% and 81% in the 25th percentile zipcode, and 84% and 92% in the 75th percentile zipcode.

Table 4: RD Estimate of Website Redesign, by Zipcode Broadband and Computer Access

	(1) Online	(2) Mobile	(3) Desktop
Post x Broadband Access	0.0334 (0.0175)	-0.0381 (0.0215)	0.0828** (0.0266)
Post x Computer Access	0.0394 (0.0266)	-0.0585 (0.0321)	0.109** (0.0403)

Notes: The table shows RD estimates at the zipcode level. In the first row the dependent variable interacts the post-change dummy with a zipcode’s average broadband access in the 2020 Census. Similarly, in the second row the interaction is with computer access. Robust standard errors clustered at the daily level.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

6.4 Consumer Sophistication

Finally, we examine how the writing style of consumers changed using the open-ended text that consumers can fill to explain the details of their complaint. Before and after the change, consumers were prompted to fill in this text box, and the vast majority of them did so.

In the first column of [Table 5](#), we examine the effect of the website redesign on the size of the comment field text and find sharp declines in the amount that consumers wrote. The length of all online complaints fell by 36% after the redesign, with a 21% fall in the length of mobile complaints and a 51% fall in the length of desktop complaints.

Several factors could explain this decline. First, consumers induced by the redesign might have a simpler writing style and so write less. On the other hand, they could have less to complain about, or the redesign may have meant that consumers provided the site more information by the time they are asked for the open ended description and so have less information left to provide.

Thus, in the next columns of the table, we examine the Flesch-Kincaid grade level, which measures the level of reading comprehension required for a particular text based upon the ratio of words to sentences and syllables to words in the text.¹³ We find substantial declines in the sophistication of the writing after the redesign.

On average, the grade level of the text in online complaints falls by about a grade level after

¹³The Flesch-Kincaid grade level measure is defined as

$$0.39\left(\frac{\text{words}}{\text{sentences}}\right) + 11.8\left(\frac{\text{syllables}}{\text{words}}\right) - 15.59. \quad (2)$$

[Section D.1](#) shows analogous results using the Flesch Reading Ease score.

the website redesign, the share of complaints with text with at least an 8th grade level falls by 9 percentage points and with a college level falls by 8 percentage points. We find larger effects for mobile complaints than desktop complaints, as mobile complaints fell by 1.6 grade levels and desktop complaints fell by 0.2 grade levels. Overall, we find that the marginal consumer induced into complaining by the redesign wrote with a simpler writing style, with much larger changes for the mobile site.

Table 5: RD Estimate of Website Redesign on FTC Complaint Length and Grade Level

	(1)	(2)	(3)	(4)
	Length (Pct Change)	Median	Flesch-Kincaid Grade Level >8th grade	>College
<u>A. FTC Online</u>				
RD Estimate	-36.09*** (3.356)	-0.905*** (0.113)	-0.0909*** (0.00856)	-0.0800*** (0.0127)
<u>B. FTC Mobile</u>				
RD Estimate	-21.42*** (2.547)	-1.622*** (0.130)	-0.142*** (0.00940)	-0.157*** (0.00987)
<u>C. FTC Desktop</u>				
RD Estimate	-50.76*** (4.167)	-0.188* (0.0727)	-0.0393*** (0.00753)	-0.00276 (0.00820)

Notes: In column 1 the dependent variable is the log length of the median complaint’s open-ended text field, at the daily level. In the second column the dependent variable is the median Flesch-Kincaid Grade Level, and the final two columns are the fraction of complaints above 8th grade or college according to the Flesch-Kincaid Grade Level. Robust standard errors clustered at the daily level. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

7 How do the Topics that Consumers Complain About Change with the Redesign?

In this section, we examine how the issues that consumers complain about change after the redesign. We take three different approaches based on the text of complaints. First, we use a large language model to predict the categories of complaints, and find larger increases in complaints about imposter scams and telemarketing, scams in which most affected consumers do not lose money. Second, we apply topic modeling to the text of complaints and find the largest increases for topics related to imposter scams, as well as identity theft complaints. Finally, we examine how the words used themselves changed, and find reductions in complaint words related to orders and purchasing.

This evidence is consistent with more complaints about issues in which consumers encounter a scam but do not lose money. In such situations, complaints are likely driven by altruistic motives alone as there are no losses for consumers to recover.

7.1 Categories

The complaints in Consumer Sentinel include the self-reported category of problem that the consumer is complaining about. Unfortunately, the categorization of frauds itself changed with the website redesign, so these categories are not directly comparable between the two time periods. We thus predict categories using the open-ended text fields and then examine how the predicted categories change after the redesign.

To implement this approach, we take advantage of recent advances in text mining approaches and “fine tune” the *distilbert-base-uncased* Large Language Model to predict categories in the post redesign period, building on work that has previously used natural language processing to assess the sentiment of complaints (DeLiema and Witt, 2023).¹⁴ Fine tuning a Large Language Model estimates the last layer of the neural network for the given objective (here, to predict categories using the complaint data), but keeps all other layers of the neural network estimated on much larger text datasets. We apply this model to online complaints using the 60 days after the website change and hold out 10% of the sample to test the accuracy of the model.

For our main estimates, we condense the categories into 5 groups based on the largest categories in the data: “Telemarketing,” “Unsolicited Text/Email,” “Imposter Scams,” “Online Shopping/Reviews,” and “All Other/Misc” as a catch all category; Appendix D.2 provides more details on this process. We then train the model to predict these 5 categories. If we assign each complaint to the category with the highest probability, we correctly predict 61% of the complaints in the held out test dataset.¹⁵

We then estimate the RD using data on the sum of predicted probabilities of each category by day; Figure 7 depicts the RD results for the imputed categories. While reports in all imputed categories increased, the telemarketing and imposter scam categories have much larger increases than the baseline rise in complaints. Complaints about telemarketing and imposter scams increase

¹⁴We use the Huggingface *transformers* library in Python.

¹⁵We provide a “confusion matrix” comparing predicted to actual categories in Appendix D.2. In some cases, a complaint is assigned to multiple category codes. In these cases, we include the same complaint text for each category.

by 66% and 53%, respectively. Complaints about spam text and email see the smallest increase, at an insignificant 7%.

For both telemarketing and imposter scams, many consumers are exposed to the scam but only a minority lose money. For example, in the case of telemarketing, consumers often report unwanted calls. Thus, for most consumers, reporting these scams relies solely on altruistic motives, rather than the prospect of recovering their losses.

We also examine an alternative, more detailed categorization with 13 categories instead of 5 in [Figure OA5](#) in [Appendix D.2](#).¹⁶ We find fairly consistent results to our main approach. We find increases for all categories except Unsolicited Text and Diet Plans / Centers (the latter of which we predict poorly). The more detailed categories show that the disproportionate increase in imposter scams is driven by an increase in complaints for both government imposters (58% increase) and business imposters (46%). Telemarketing again sees a large increase post-redesign, although we also find larger increases than the overall effect for Tech Support, Unsolicited Email, Job, and Investment scams.

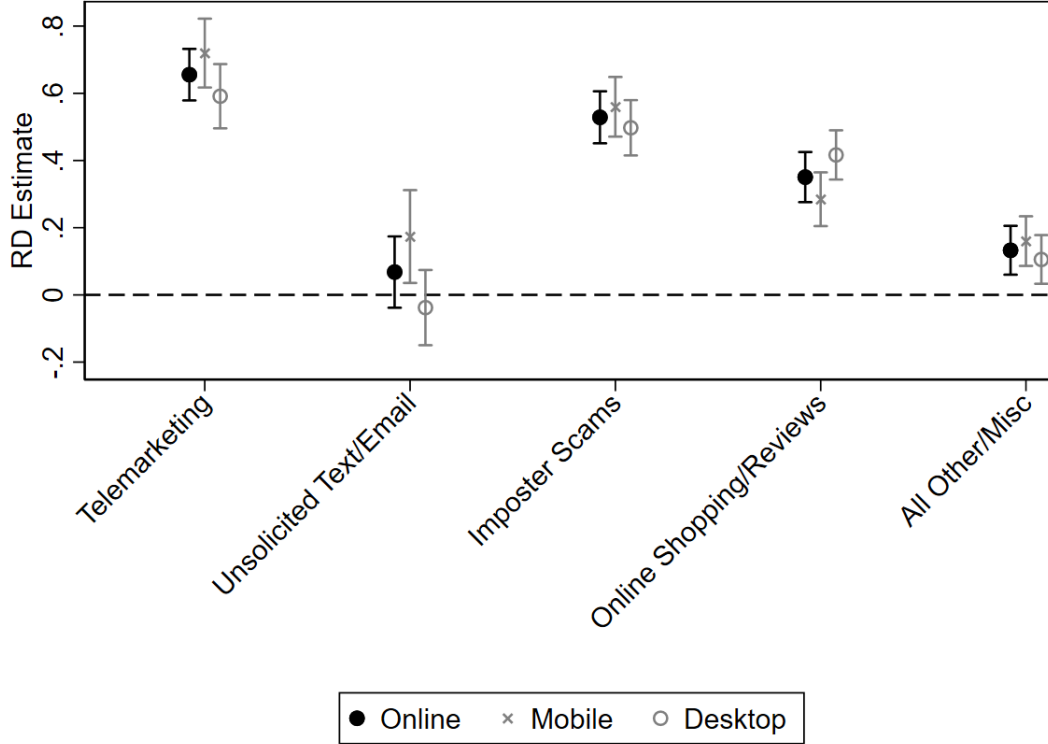
7.2 Topic Modeling

A weakness of the approach above is that it relies on the complaint categories that already exist in Consumer Sentinel. These categories are quite broad, and so may not convey some of the nuance of consumers’ problems. They rely on consumers accurately entering the category that their problem concerns. Finally, some issues are not well captured by these categories. For example, a common consumer protection problem is “negative option” schemes where consumers sign up for a free trial, unaware that they are enrolling into a subscription program unless they affirmatively cancel. While negative option subscriptions all exhibit the same consumer protection problem, they would be classified differently depending on the industry involved. For example, negative option complaints might be classified as Diet Plans if they involve diet pills, Telephone Services if they involve a telecom carrier, or Online Shopping if they involve an online platform.

We thus also apply a topic modeling approach to the text of consumer complaints using the *BERTopic* package in Python ([Grootendorst, 2022](#)). The topic modeling approach first converts

¹⁶These categories are Unwanted Telemarketing; Unsolicited Text; Business Imposter; Online Shopping; Govt Imposter; Unsolicited Email; Tech Support; Job Scams; Prizes/ Sweepstakes; Romance Scams; Misc Investments; Diet Plans / Centers; and All Other.

Figure 7: RD Estimate of Website Redesign on Imputed Product Category



Notes: The figure shows point estimates and 95% confidence intervals for estimates of [equation \(1\)](#), where the dependent variable is the log sum of the predicted probability of each category using the text of consumer complaints. Robust standard errors clustered at the daily level. [Table OA8](#) is the corresponding table.

the text of complaints to a high dimensional numerical representation. It then reduces the dimensionality of this representation and clusters the complaints into different clusters. Finally, the approach combines all complaints in a cluster into a single document, and uses a term frequency analysis and a fine tuned Large Language Model to represent each topic based on the words unique in that document. We provide more details of this approach in [Appendix D.3](#).

We implement this topic modeling approach on complaints from the two months before and after the redesign. We set the cluster size to at least 120 complaints; that is, each cluster has to have one complaint per day on average. The topic modeling approach identifies 368 topics; in addition, about 35% of the complaints are characterized as “outliers” and so not assigned topics.

We then estimate RD regressions on the number of complaints per day in each topic. We restrict the topics analyzed to topics with non-zero complaints in at least half of the days, so that our analysis does not pick up changes due to “new topics” such as a new scam occurring in the

two month period after the redesign. We depict the RD estimates in [Figure 8](#), bolding all topics whose RD estimate is statistically significantly different from 0 after a Bonferroni correction for the number of statistical tests.

In total, we find significant increases for 44 topics and significant decreases for 13 topics. The topic modeling approach provides a representation for each topic based on a set of representative words and documents. [Table 6](#) contains a list of the topics with statistically significant changes and, for simplicity, over 2,000 complaints. The table includes their keyword based representation, their RD estimate from the redesign, the number of complaints before and after the redesign, and the broader issue they are classified into. [Table OA10](#) through [Table OA12](#) show the full list of topics for those with statistically significant negative and positive estimates.

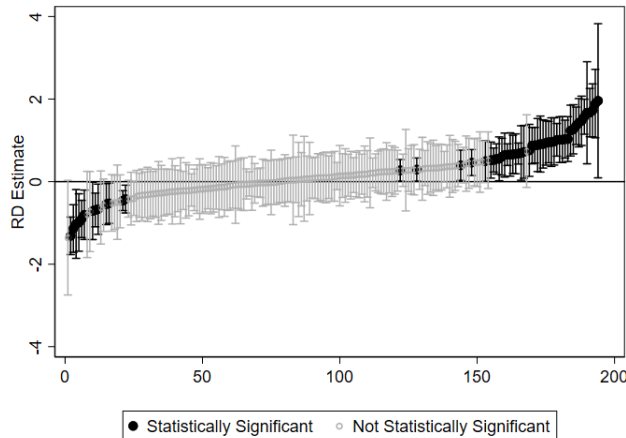
Perhaps the most surprising finding is that five of the topics with a significant increase (and two with over 2,000 complaints) are about different identity theft scams, where scammers file for government loans or unemployment benefits in someone else’s name. The FTC operates a separate website specifically for identity theft, *identitytheft.gov*, where these complaints should have been filed. The landing page for both the old and new complaint website displayed links to the identity theft website (see [Figure 1](#) and [Figure 2](#)), although the screen real estate for the identity theft link is larger on the old website. By making it easier for identity theft victims to file complaints at the fraud website, many may have filed fraud complaints as opposed to filing identity theft complaints at *identitytheft.gov*.

The remaining significant topics that we classify parallel our earlier category analysis. The most common category, at 16 of 44 topics, is imposter scams, where the imposter may pretend to be government agencies like the SSA or police, businesses like Amazon or Apple, or friends/family/coworkers. This increase in complaints about imposter scam topics is consistent with the rise in the “Imposter Scam” category we documented in the category analysis. The remaining topics are scattered across several issues, with three topics about job scams (including paid surveys or “mystery shoppers”) and three topics involving claims of a hack of the consumer’s computer.¹⁷ Of the 13 topics with a significant decline, seven of the thirteen involve spam texts

¹⁷Interestingly, a few topics are not about a specific type of scam. One topic clusters together complaints describing a money transfer, while another groups complaints with the word “Update”, a third groups complaints in Spanish rather than English, and a fourth is consumers complaining that it is difficult to copy paste information into the complaint.

while only two are related to imposters. These differences match the smaller increase in spam texts in the category analysis.

Figure 8: RD Estimate of Website Redesign on Imputed Topics



Notes: The figure shows point estimates and 95% confidence intervals for estimates of [equation \(1\)](#), where the dependent variable is the log number of daily online complaints by consumers in each topic. Robust standard errors clustered at the daily level. We bold topics with a statistically significant change after a Bonferroni correction for the number of topics.

7.3 Likelihood of Losses

Above, we found the largest increases after the redesign were in complaint categories where many consumers with exposure to the scam may not have lost money. We now directly examine whether consumers lost money, because many consumers either report a zero loss or leave the question blank. However, as [Table 7](#) shows, consumers are not less likely to report losing money after the redesign.

This analysis relies on consumers’ self-report on how much money they lost, but some consumers might leave this data field blank and only report losses in the text. In addition, if the redesign increased consumers’ willingness to report how much money they lost (similar to increases in quality in other fields documented in [Section 5.2](#)), we could see increases in reports of losses.

Thus, we also make inferences about consumer experiences using the most distinctive words that appear in complaint texts. We start by identifying the most common words in the two months following the redesign.¹⁸ Using [equation \(1\)](#), we estimate which of these words saw a statistically

¹⁸Specifically, we omit all numbers, punctuation, white space, and “stop words”. We then stem the documents to their root, and limit the resulting terms to ones that occur in between 1% and 40% of complaint texts. The two

Table 6: RD Estimate of Website Redesign on Selected Topics

Representation	Est.	(S.E.)	Total Complaints	Assigned Category
Positive and Significant				
9_ifdonotreceivehebitcoin indefinitelywillsendoutyourvideorecordto	1.96	(0.13)	3373	Hack Claim
21_unemployment claim_illinois dept_filed claim_unemployment benefit	1.73	(0.24)	2624	Identity Theft
23_unemployment fraud_unemployment claim_filed claim_fraudulent claim	1.67	(0.20)	2552	Identity Theft
181_update help_update just_update ne_update problem	1.03	(0.10)	2730	“Update” Word
1_icloud breach_saying icloud_icloud account_apple icloud	1.01	(0.11)	9218	Imposter
28_contacted ebay_fake ebay ebay contact_ebay email	0.87	(0.08)	2366	Online Shopping
3_calls com_calls differ_caller_caller id	0.68	(0.07)	6612	Unwanted Calls
17_federal bureau_payment_transfer_bureau investig	0.66	(0.18)	2826	Money Transfer
0_ss number number suspend_ssa_ssn suspend	0.65	(0.13)	28618	Imposter
27_iphone amazon_calling amazon_amazon fraud_contacted amazon	0.55	(0.20)	2402	Imposter
30_withdraw profit_withdraw money_withdraw fund_tried withdraw	0.55	(0.17)	2094	Investment
6_won million_scammer_prize money_told won	0.52	(0.15)	4068	Lottery/Prize
19_charged amazon_charge amazon_amazon account_calling amazon	0.50	(0.17)	2771	Imposter
13_landlord_craigslist ad_tenant_craigslist org	0.46	(0.16)	3086	Rental
26_medicare inform_medicare report_medicare told_calling medicar	0.39	(0.11)	2422	Imposter
8_grant program_grant money_000 grant_free grant	0.29	(0.16)	3926	Imposter/Grant
10_scammer_asked money_send money_asking money	0.27	(0.16)	3374	Romance
Negative and Significant				
20_received check_applied job_offered job_send check	-0.42	(0.13)	2747	Job
2_spam text_unwanted text_received text_receiving text	-0.46	(0.16)	9213	Spam Text
24_unsubscribed email_unsubscribe email_emails unsubscribe_email unsubs	-0.69	(0.17)	2520	Spam Email
16_political text_text polit_political spam_messages polit	-1.14	(0.24)	2983	Spam Text
15_scam email_spam email_email threaten_hacked account	-1.31	(0.54)	2850	Hack Claim

Notes: The table shows estimates of [equation \(1\)](#), where the dependent variable is the log number of complaints within each imputed topic area. For each topic, we include the representation of the topic, RD coefficient and standard error, the number of complaints in the two months before and after the redesign, and the category assigned by the authors to the topic. The representation of the topic includes a number (in order of size from 0 to 367) and representative words for the topic. The specification includes a third degree polynomial and controls for day of the week. Data includes complaints at the daily level across FTC desktop and mobile platforms. The data include complaints from 60 days before and after the FTC’s website redesign on October 22, 2020. Robust standard errors clustered at the daily level. We only include topics with at least 2,000 complaints over the period.

Table 7: RD Estimate of Website Redesign on FTC Complaints Reporting a Dollar Loss

	(1) Reported a Loss	(2) Mean Loss Amount (log)
<u>A. FTC Online</u>		
RD Estimate	-0.00745 (0.00621)	0.0732 (0.0857)
<u>B. FTC Mobile</u>		
RD Estimate	-0.0156 (0.00889)	0.0132 (0.134)
<u>C. FTC Desktop</u>		
RD Estimate	0.000693 (0.00734)	0.133 (0.109)

Notes: The table shows estimates of [equation \(1\)](#), where the dependent variable is the log number of complaints that reported a dollar loss and the log of the mean value of the daily loss reported. Robust standard errors clustered at the daily level. $*p < 0.05$, $**p < 0.01$, $***p < 0.001$

significant rise or decrease in use following the website redesign. To account for multiple hypothesis testing, we apply a Bonferroni correction to adjust the critical value for statistical significance.

[Table 8](#) shows which of the 512 words we examined had a statistically significant rise or fall on both the mobile and desktop FTC complaint sites.¹⁹ Although 18% of words increased in relevance for desktop and 28% increased for mobile, relatively few had a statistically significant increase or decrease.

Among words that saw statistically significant increases, the main theme that emerges is words related to automotive issues, such as “vehicle,” “license,” “repair”, and “drive.” One explanation for this increase may be the change in how complaints were initially categorized. On the old website, auto-related issues were not a major category, and so consumers had to click on “Other” and then “Automobile” for auto-related issues. On the new website, “Auto sales, repair” was a major category. Thus, the redesign may have made consumers realize that the FTC’s complaint website was the right place to complain about auto related issues.

Many more words had statistically significant decreases. One clear theme that emerges is that consumers were less likely to report situations that may have led to monetary losses. Terms related to payments and purchases, such as “deposit,” “money,” “offer,” “order,” “refund,” “return,”

months following the redesign are October 22 through December 21, 2020.

¹⁹[Table OA9](#) shows the words that had statistically significant increases and decreases for just mobile or desktop interfaces.

“dollar,” “bought,” and “purchase” all saw declines in both interfaces, as did methods of payment such as “credit,” “debit,” “check,” and “paypal” and Internet related words such as “websit,” “onlin,” and “facebook”. Some of the terms also point to a theme of a decrease in scams related to impersonations, one type of imposter scam, with terms such as “accent,” “famili,” “friend,” “convers,” and “pretend.”

Thus, our analysis of the words used in complaints indicates that consumers were less likely to complain about issues related to payments, as well as orders, refunds, impersonation, and computer related issues.

Table 8: Terms with Statistically Significant Changes

<hr/>	
<u>Increases</u>	vehicl, licens, repair, known, worth, drive, wouldnt, seller, union, replac, failur, breach, consid, robocal, schedul, hello, press, novemb, pleas, thank
<u>Declines</u>	email, contact, money, person, compani, inform, updat, check, never, state, provid, order, offer, websit, credit, someone, respond, servic, purchas, answer, didnt, still, request, return, refund, direct, septemb, peopl, actual, think, without, complaint, payment, start, password, place, onlin, repres, deposit, offic, later, point, proof, happen, believ, decemb, accent, suppos, spoke, thought, month, refer, anyth, refus, taken, dollar, famili, certain, polic, notic, given, wasnt, pictur, probabl, realiz, obtain, complet, final, individu, delay, friend, howev, consum, initi, facebook, situat, solut, contract, paypal, sound, simpli, wrong, promis, demand, heard, store, threaten, bought, experi, though, instead, correct, convers, chase, debit, almost, couldnt, releas, medic, agenc, advertis, pretend, mother

Notes: The table shows the terms that saw a statistically significant increase or decline in use after the FTC’s website redesign for both mobile and desktop complaints separately. The set of all possible terms do not common stop words or words that were included in fewer than 1 percent or over 40 percent of FTC complaints. All words were destemmed to create the most popular terms. Each resulting term was then used as a dependent variable in estimates of [equation \(1\)](#), with a Bonferroni correction to account for multiple hypothesis testing. The statistically significant terms are listed in decreasing order of coefficient estimate magnitude.

8 Discussion and Conclusion

In this article, we have studied the effect of a major website redesign to the FTC’s consumer fraud complaint website, using regression discontinuity techniques to evaluate the effect of the change. Online complaints to the FTC rose 28% overnight due to the change; we found no significant

increase in complaints to other sources such as calls to the FTC or complaints to the BBB or CFPB.

We found evidence for countervailing effects of the redesign on complaining. On the one hand, the redesign led to reductions in the length and grade level of the text of the complaint as well as more complaints from communities previously less likely to complain. Thus, the redesign may have led less sophisticated or more vulnerable users to complain. On the other hand, the complaint text was less likely to relate to purchases and payments, and complaints were more likely to concern imposter scams and telemarketing where most exposed consumers do not lose money. Thus, consumers induced to complain by the redesign may have experienced less severe consumer protection problems.

We sum up our analysis in [Appendix B](#) by using a LATE framework to compare how the complaints from compliers induced by the redesign compare to those of always-takers who would have complained regardless of the redesign. We find quite large differences between complier complaints and always taker complaints for many characteristics. For example, we find that 42% of complier complaints are about imposter scams, compared to 18% of taker complaints; complier complaints have text that is more than 3 grade levels lower in sophistication.

In our view, the changes in complaints from the redesign were beneficial to policymakers seeking to protect consumers. The FTC launched the “Every Community Initiative” to make sure that its efforts address the problems of the various communities in the United States ([Federal Trade Commission, 2021b](#)); thus, more complaints from communities less likely to complain before the redesign help the agency meet this goal. In addition, relying purely on altruistic motives for reporting may mean certain types of frauds where most affected consumers do not suffer financial losses are under-reported. More complaints on such issues help the agency learn about them and deter them, either through consumer education efforts or enforcement actions.

A natural question is whether the effects found in this article can be generalized to other settings. Answering this question is difficult as the main “treatment” affected both the perceived benefits and costs of complaining. On the cost side, the improvements in visual design and reduction in the flow process to complain are qualitatively similar to efforts to make other websites easier to use. To give a recent example, the FTC recently alleged that Amazon deliberately complicated the cancellation flow for Prime subscribers in order to reduce cancellations, which was internally named

the “Iliad Flow” due to its length. Amazon internally evaluated potential user design changes that would have simplified the flow to cancel but increased cancellations.²⁰

On the other hand, the redesign also affected the potential benefits to complaining by emphasizing how complaints help stop fraud and protect communities. This type of “pro-social” messaging would not make sense on most websites; for example, there are no clear public good benefits from a user joining or cancelling Prime. Complaints to other consumer protection organizations, such as the CFPB and BBB, also have similar pro-social benefits. However, unlike the FTC, these organizations forward complaints on to firms for resolution, which may increase the likelihood of restitution and so provide a stronger private benefit to complaints. If stronger pro-social messaging means less emphasis on the private benefits of recovery, it is unclear whether the net effect of the change in messaging would increase or decrease complaints.

In addition, many websites host online reviews, such as Yelp, TripAdvisor, Google, and AirBnB, which may also provide pro-social benefits. For example, reviews on AirBnB may steer consumers towards better hosts and away from worse hosts, and may help hosts correct deficiencies that they were unaware of. [Raval \(2024\)](#) indeed finds lower average reviews for business with likely consumer protection problems, although the magnitude of this effect varies considerably across review platforms. Thus, pro-social messaging has the potential to increase online reviews in certain circumstances as well.

However, pro-social messaging could also affect the mix and content of reviews; for example, if consumers are more likely to post negative reviews to protect other consumers, messaging about “protecting the community” could lower average ratings by disproportionately increasing negative reviews. Similarly, pro-social messaging could mean more discussion and content on consumer protection issues as opposed to other attributes of the product or business such as prices or customer service.

²⁰See <https://www.ftc.gov/legal-library/browse/cases-proceedings/2123050-amazoncom-inc-rosca-ftc-v>.

9 Funding and Competing Interests

We have no competing interests.

References

- Aizer, Anna.** 2007. “Public health insurance, program take-up, and child health.” *The Review of Economics and Statistics*, 89(3): 400–415.
- Akerlof, George A.** 1978. “The economics of” tagging” as applied to the optimal income tax, welfare programs, and manpower planning.” *The American economic review*, 68(1): 8–19.
- Anderson, Eric T, and Duncan I Simester.** 2014. “Reviews Without a Purchase: Low Ratings, Loyal Customers, and Deception.” *Journal of Marketing Research*, 51(3): 249–269.
- Anderson, Keith B.** 2019. “Mass-market consumer fraud in the United States: A 2017 update.” *Federal Trade Commission. Washington, DC*.
- Anderson, Keith B.** 2021. “To Whom Do Victims of Mass-Market Consumer Fraud Complain?” *Available at SSRN 3852323*.
- Angrist, Joshua D, and Jörn-Steffen Pischke.** 2009. *Mostly harmless econometrics: An empiricist’s companion*. Princeton university press.
- Bergstrom, Theodore, Lawrence Blume, and Hal Varian.** 1986. “On the private provision of public goods.” *Journal of public economics*, 29(1): 25–49.
- Chan, Kenneth S, Stuart Mestelman, and R Andrew Muller.** 2008. “Voluntary provision of public goods.” *Handbook of experimental economics results*, 1: 831–835.
- Chaudhuri, Ananish.** 2011. “Sustaining cooperation in laboratory public goods experiments: a selective survey of the literature.” *Experimental economics*, 14: 47–83.
- Currie, Janet.** 2006. “The take-up of social benefits.”
- DeLiema, Marguerite, and Paul Witt.** 2021. “Mixed Methods Analysis of Consumer Fraud Reports of the Social Security Administration Impostor Scam.”
- DeLiema, Marguerite, and Paul Witt.** 2023. “Profiling consumers who reported mass marketing scams: demographic characteristics and emotional sentiments associated with victimization.” *Security Journal*, 1–44.
- DeLiema, Marguerite, Doug Shadel, and Karla Pak.** 2020. “Profiling victims of investment fraud: Mindsets and risky behaviors.” *Journal of Consumer Research*, 46(5): 904–914.
- Dukes, Anthony, and Yi Zhu.** 2019. “Why customer service frustrates consumers: Using a tiered organizational structure to exploit hassle costs.” *Marketing Science*, 38(3): 500–515.
- Ebenstein, Avraham, and Kevin Stange.** 2010. “Does inconvenience explain low take-up? Evidence from unemployment insurance.” *Journal of Policy Analysis and management*, 29(1): 111–136.

- Federal Trade Commission.** 2021*a*. “Curbing COVID Cons: Warning Consumers about Pandemic Frauds, Scams, and Swindles.” Congressional Testimony.
- Federal Trade Commission.** 2021*b*. “Serving Communities of Color.” Staff Report.
- Federal Trade Commission.** 2023. “New FTC Data Show Consumers Reported Losing Nearly \$8.8 Billion to Scams in 2022.” Staff Report.
- Fischbacher, Urs, and Simon Gächter.** 2010. “Social preferences, beliefs, and the dynamics of free riding in public goods experiments.” *American economic review*, 100(1): 541–556.
- Foote, Andrew, Michel Grosz, and Stephanie Rennane.** 2019. “The Effect of Lower Transaction Costs on Social Security Disability Insurance Application Rates and Participation.” *Journal of Policy Analysis and Management*, 38(1): 99–123.
- Fradkin, Andrey, and David Holtz.** 2023. “Do incentives to review help the market? evidence from a field experiment on airbnb.” *Marketing Science*.
- Gächter, Simon, Daniele Nosenzo, Elke Renner, and Martin Sefton.** 2010. “Sequential vs. simultaneous contributions to public goods: Experimental evidence.” *Journal of Public Economics*, 94(7-8): 515–522.
- Gans, Joshua S, Avi Goldfarb, and Mara Lederman.** 2021. “Exit, tweets, and loyalty.” *American Economic Journal: Microeconomics*, 13(2): 68–112.
- Grootendorst, Maarten.** 2022. “BERTopic: Neural topic modeling with a class-based TF-IDF procedure.” *arXiv preprint arXiv:2203.05794*.
- Grosz, Michel, and Devesh Raval.** 2022. “Fraud Across Borders.” *Available at SSRN 4197797*.
- Hausman, Catherine, and David S Rapson.** 2017. “Regression Discontinuity in Time: Considerations for Empirical Applications.” National Bureau of Economic Research Working Paper 23602.
- He, Sherry, Brett Hollenbeck, and Davide Proserpio.** 2022. “The market for fake reviews.” *Marketing Science*, 41(5): 896–921.
- Hirschman, Albert O.** 1972. *Exit, voice, and loyalty: Responses to decline in firms, organizations, and states*. Harvard university press.
- Imbens, Guido W, and Donald B Rubin.** 1997. “Estimating outcome distributions for compliers in instrumental variables models.” *The Review of Economic Studies*, 64(4): 555–574.
- Jin, Ginger Zhe, and Phillip Leslie.** 2003. “The Effect of Information on Product Quality: Evidence from Restaurant Hygiene Grade Cards.” *The Quarterly Journal of Economics*, 409–451.
- Kaufmann, Daniel.** 2021. “Community Advocate Center connects more people to the FTC.” Federal Trade Commission press release.
- Kleven, Henrik Jacobsen, and Wojciech Kopczuk.** 2011. “Transfer program complexity and the take-up of social benefits.” *American Economic Journal: Economic Policy*, 3(1): 54–90.

- Kopczuk, Wojciech, and Cristian Pop-Eleches.** 2007. “Electronic filing, tax preparers and participation in the Earned Income Tax Credit.” *Journal of public Economics*, 91(7-8): 1351–1367.
- Lewis, Gregory, and Georgios Zervas.** 2020. “The Supply and Demand Effects of Review Platforms.” *Unpublished manuscript*.
- Luca, Michael.** 2011. “Reviews, Reputation, and Revenue: The Case of Yelp. com.”
- Luca, Michael, and Georgios Zervas.** 2016. “Fake It Till You Make It: Reputation, Competition, and Yelp Review Fraud.” *Management Science*, 62(12): 3412–3427.
- Luguri, Jamie, and Lior Jacob Strahilevitz.** 2021. “Shining a light on dark patterns.” *Journal of Legal Analysis*, 13(1): 43–109.
- Mayzlin, Dina, Yaniv Dover, and Judith A. Chevalier.** 2014. “Promotional Reviews: An Empirical Investigation of Online Review Manipulation.” *The American Economic Review*, 104(8): 2421–2455.
- Nichols, Albert L, and Richard J Zeckhauser.** 1982. “Targeting transfers through restrictions on recipients.” *The American Economic Review*, 72(2): 372–377.
- Nosko, Chris, and Steven Tadelis.** 2015. “The Limits of Reputation in Platform Markets: An Empirical Analysis and Field Experiment.” National Bureau of Economic Research.
- Parsons, Donald O.** 1991. “Self-screening in targeted public transfer programs.” *Journal of Political Economy*, 99(4): 859–876.
- Pei, Zhuan, David S Lee, David Card, and Andrea Weber.** 2022. “Local polynomial order in regression discontinuity designs.” *Journal of Business & Economic Statistics*, 40(3): 1259–1267.
- Raval, Devesh.** 2020a. “Which Communities Complain to Policymakers? Evidence from Consumer Sentinel.” *Economic Inquiry*, 58: 1628–1642.
- Raval, Devesh.** 2020b. “Whose voice do we hear in the marketplace? Evidence from consumer complaining behavior.” *Marketing Science*, 39(1): 168–187.
- Raval, Devesh.** 2021. “Who is Victimized by Fraud? Evidence from Consumer Protection Cases.” *Journal of Consumer Policy*, 44: 43–72.
- Raval, Devesh.** 2024. “Do Bad Business Get Good Reviews? Evidence Across Several Online Review Platforms.”
- Tadelis, Steven, and Florian Zettelmeyer.** 2015. “Information Disclosure as a Matching Mechanism: Theory and Evidence from a Field Experiment.” *American Economic Review*, 105(2): 886–905.
- Voicu, Ioan.** 2018. “Using first name information to improve race and ethnicity classification.” *Statistics and Public Policy*, 5(1): 1–13.

A Website Changes

We first describe deficiencies in the original FTC Complaint Assistant Website uncovered by usability testing, and then go over the changes made in the new Report Fraud website that addressed these concerns.

Broadly speaking, we can divide the issues that users had with the previous website into two categories. First, many users felt disconnected from the FTC and the government and that complaining seemed to be a waste of time. The new website responded to these critiques by highlighting the public good benefits of complaints. Second, users found the complaint categorization difficult to use, the process of complaining too long, and the visual design difficult to parse; all of these are forms of “hassle costs” that made the website difficult to use. The FTC responded by improving the visual design and complaint categorization and simplifying the complaint process. We provide more details below.

A.1 Alienation from FTC / Government

A major issue that users flagged is that users felt alienated and disconnected from the FTC and from government. First, users felt that the FTC immediately stated that they cannot resolve individual complaints, which turned off consumers who found the whole exercise of filing a complaint a waste of time. In addition, the FTC did not provide any information about what would happen to the complaint after it was filed, provide empathy to consumers for helping them in filing the complaint, or provide information about steps to protect themselves from scams in future. Users also felt that the FTC also did not explain why they asked for personal information like the age and military status of consumers.

These issues extended to the visual design of the website, the issue of the next subsection. Users complained that the design did not communicate that this was an official FTC government website or that the FTC cared about the consumer’s complaint and wanted to help the user.

The new website addressed these concerns by highlighting the public good nature of reporting: that consumers’ reports were used to help the community by fighting fraud. First, the name of the website itself was changed to “reportfraud.gov”, and the immediate tagline when visiting the website is “Report to help fight fraud!”. The main graphic on the homepage has a bunch of houses with people walking by, which was meant to emphasize the community aspect of reporting. An outline of a shield emphasized how the report would help shield the community. Below, the website states “Protect your community by reporting fraud, scams, and bad business practices.”

In addition, the FTC made clear what happened to the complaint after filing. Below the main screen, the FTC provided a three step guide to the complaint process, which emphasized that after the consumer filed a complaint (step 1), the FTC would provide next steps on how consumers could protect themselves (step 2), and that the reports would be used to help stop fraud (step 3). Building on step 3, consumers scrolling further down learn that reports are shared with more than 2,800 law enforcers, and that while “We can’t resolve your individual report, but we use reports to investigate and bring cases against fraud, scams, and bad business practices.”. A graphic below visually displays how a consumers’ report is shared with law enforcers across the country.

Consumers had also complained that the FTC did not provide steps to take to protect themselves from scams in future. As explained above in “step 2”, the FTC now provides several tips for users to reduce their risk of falling victim to scams, together with links to other FTC resources. These steps are also somewhat customized to the consumers’ issue.

In order to make clear that the website was a government website, the top left includes the FTC logo as well as “Federal Trade Commission”, and the official name for the website includes both “ftc” and “gov” (ReportFraud.ftc.gov).

A.2 Complaint Categorization

For both the FTC Complaint Assistant and Report Fraud websites, the first thing the user has to do is classify their complaint into one of several categories. One major concern of participants in the usability testing focus group was that it was difficult to classify their complaint.

Focus group users complained that there were too many categories on the homepage and so the site immediately put over users as not easy to navigate. In particular, there were too many sub-categories to choose from (after an initial broad category), the categories were stressful and users didn’t know how to report, the categories were repetitive and not clear, the categories were too general and so it wasn’t clear if the FTC could address their complaint, and users couldn’t find a category that fit their problem and didn’t want to choose a “wrong” category.

In response, the FTC considered multiple ways for users to choose their complaint category, including a menu including all categories, and ultimately chose an “accordion” style approach in which a user first picks among a broad set of categories and then sees a narrow set of options within the broad category. In focus groups, users preferred the

accordion style approach to seeing all of the options at once, but were more likely to pick the most accurate category for their complaint seeing all of the options. These findings prompted a broader and more differentiated initial set of categories.

In the final accordion style menu, users first have to choose amongst one of ten possible broad categories, such as “impersonator”, “online shopping”, or “health”. Given their choice, there are a few additional options. For example, users choosing “health” could narrow the product to “weight loss product”, “eye care”, “someone pretending to be a government agency”, “fake or misleading treatment or cure”, or “any other problem”.

Importantly, the initial menu included “something else”, so consumers who did not feel like the other options fit had somewhere to click. The previous website did not have this option.

A.3 Visual Design

Users also found the FTC’s website difficult to process visually for several reasons. The website’s homepage appeared cluttered and content heavy, creating the impression that navigation might be challenging. The layout was overwhelming with an overabundance of text was spread across the site, leading users to overlook crucial instructions. Unfortunately, the content suffered from repetitiveness and lack of clarity. Users tended to gravitate toward the bottom of the homepage, likely because it was easier to read. Internal pages suffered from excessive white space and gray areas on either side. Font inconsistencies—ranging from being too small to overly bold—made readability difficult.

The new website saw a full scale redesign of the visual design. In general, the main principles were to reduce the amount of content, increase the font size and improve font consistency and readability, and have a common visual design throughout the website. This started with the homepage – there is much less text and the text that remained was in much larger font. Fonts were easier to read throughout the website, with dark blue indicating section headings, and a dark blue box indicating that consumers could proceed to the next section. Yes/No questions also gated the information that consumers were asked, in order to reduce the amount of content that consumers saw unless that content made sense given the consumers’ choice (for example, detailed information about a company’s address / phone / email are only inputted if the consumer says they know more about the company). The landing page also removed prominent links to other FTC websites (such as identitytheft.gov, DoNotCall.gov, etc.) below the main screen and replaced them with an explanation of the various steps involved in the complaint.

A.4 Flow

Users’ main complaint with the process of filing a complaint was that it took too long – users felt overwhelmed when faced with a 7-step process, and so were hesitant to proceed. Rather than engaging thoughtfully, they tended to fill out the form mechanically. In addition, users wanted more intuitive guidance on where to click to initiate a complaint, clear demarcations of different sections on the review page, and clear links to return consumers to the homepage if needed.

The new website responded to these issues by sharply reducing the length of the process required to file a report. After deciding on a category (described above), there are now only two steps. In the first step, the consumer provides details about what happened (such as the amount of money lost and how the consumer was contacted) and about the scammer. In addition, an open ended text box allows consumers to write their full story of what happened. In the second step, the consumer can provide details about themselves, such as their name and address, and then submit the complaint.

The “flow” to complain is also much more straightforward. On the homepage, there is a large “Report now” button, as well as multiple other links at the top right and farther down the screen for consumers to click to start their report. Once they start the report, a slider shows consumers that they are already halfway done at the first step and 2/3rds done at the second step. Clear Back and Forward links allow consumers to move forward or backward through this process.

Users in the usability tests found the new website easy to use, and were happy with how short and simple the form was. In addition, they liked having the open ended text box on the first page to be able to tell their story in their own words. The previous website had included the open ended text box on the sixth step, frustrating users who wanted to explain what happened to them.

B Consumers Induced to Complain By the Redesign

We now use our RD estimates to examine the characteristics of consumers induced to file a report due to the redesign. In the language of the Rubin causal model, we are interested in how the characteristics of the complier population

compare to those of the always-taker consumers who were complaining even before the redesign. Although we cannot explicitly identify which consumers are in each group, we can use our results to study how their characteristics differ (Imbens and Rubin, 1997; Angrist and Pischke, 2009).

Since we observe mean characteristics before the redesign, which tell us about the mean of the always taker population, as well as the change in the number of complaints and characteristics with the redesign, we can obtain the mean characteristics of compliers. The mean of the baseline characteristic Y for compliers is:

$$E(Y_{complier}) = \Delta \frac{1+\gamma}{\gamma} + E(Y_{taker}), \quad (3)$$

where Δ is the RD (level) estimate for variable Y , γ is the RD (percentage) estimate for number of complaints, and $E(Y_{taker})$ is the mean of the characteristic for always takers—that is, the pre-redesign mean. We observe $E(Y_{taker})$ using data from before the redesign, and estimate γ in Section 5 and Δ in Section 6 and Section 7 for different characteristics. We derive equation (3) in Appendix F.²¹

This derivation requires two crucial assumptions. First, the population of defiers must be negligible; that is, consumers who would have submitted a complaint prior to the redesign would also have submitted one after. Since the redesign made the website much easier to use, we see this assumption as innocuous. Second, all of the change from the redesign must be due to changes in composition; that is, the redesign did not affect the types of complaints from taker complainants. This assumption is trivially satisfied for a person’s name: it is unlikely that the redesign caused takers to change their names. However, the assumption would fail for age bands because takers also increased their reporting of age conditional on submitting a complaint. In that case, we can still examine the average characteristics of compliers compared to takers under the additional assumption that missing characteristics are missing at random.

The first panel of Table A1 displays the mean for several demographic characteristics for taker and complier complainants, respectively. Since we do not find many differences in the effect size across age groups, we also do not find that compliers and takers are substantially different in their age composition. We also find small differences between compliers and takers on race and ethnicity, except that compliers are, on average, 3 percentage points less likely to be Latino.

Compliers tend to live in zip codes in which victims complain less than the median zip code. Raval (2020b) estimates a demographic weight as the inverse of the predicted likelihood that a victim complains, normalized to one for the median zip code. This weight increases from 0.94 for taker complaints to 1.34 for complier complaints.

The second panel of the table examines characteristics of the text and whether consumers report a loss. Compliers use much less sophisticated language, with more than three grade levels less sophisticated text than takers. The fraction with language above an 8th grade level declined precipitously. In addition, compliers are slightly less likely to report a loss; on average, 23% of taker complainants report a loss, compared to 20% of complier complainants.

The last panel of the table examines the types of scams and schemes that consumers reported. For this analysis we use the complaint categories we imputed in Section 7.1. Compliers were more than twice as likely to report telemarketing and imposter scams than takers. However, they were just slightly more likely to report issues with online shopping, and much less likely to report text and email problems. Table OA13 splits out this compliers analysis by the mobile and desktop complaints, with similar implications.

²¹For certain specifications, we estimate the RD estimate for variable Y in percentage terms rather than level terms. In that case, replace Δ in equation (3) with $(\delta + 1)E(Y_{taker})$, where $\delta + 1$ is the RD estimate in percentage terms. See Appendix F for more details.

Table A1: Differences between Takers and Compliers for FTC Online Complaints

	(1) Takers	(2) Compliers
<i>Demographic Characteristics</i>		
Age under 40	0.363	0.340
Age 40-59	0.345	0.386
Age Over 60	0.292	0.274
Age 60-69	0.179	0.157
Age 70-79	0.090	0.092
Age Over 80	0.023	0.025
White	0.726	0.757
Black	0.104	0.092
Latino	0.100	0.070
Asian/PI	0.048	0.057
Female	0.501	0.576
Demographic Weight	0.945	1.341
<i>Text and Losses</i>		
Reported Loss	0.230	0.196
Grade Level	9.161	5.044
Grade Level >8th	0.599	0.185
<i>Imputed Product Category</i>		
Telemarketing	0.071	0.222
Unsolicited Text or Email	0.250	0.069
Imposter Scams	0.183	0.424
Online Shopping and Reviews	0.099	0.126
All Other and Misc.	0.397	0.159

Notes: The first column of the table, for takers, shows the mean characteristics for FTC complaints in the 30 days prior to the website redesign on October 22, 2020. The second column shows the imputed means for complier complainants. These means are calculated using the pre-redesign mean, the coefficient estimate from [equation \(1\)](#), and the coefficient estimate on the number of complaints, as in [equation \(3\)](#).