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Which Communities Complain to Policymakers? Evidence from Consumer Sentinel

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Which Communities Complain to Policymakers?

Evidence from Consumer Sentinel*

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Abstract

I use a large database of millions of complaints to examine how per-capita complaint rates vary across communities, as well as heterogeneity in complaining across different agencies and consumer protection issues. I find higher complaint rates in more heavily black, more educated, and more urban communities and lower complaint rates in more heavily Hispanic and higher household size communities. The demographics of complaints are quite different for the CFPB, with much higher rates of complaints from black and college educated areas compared to the FTC or BBBs. I also find much higher rates of finance related complaints from black communities.

Keywords: consumer complaint and dispute, customer satisfaction, public data, demographics

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1 Introduction

Consumer complaints channel consumer “voice” (Hirschman (1970)) to policymakers, and so provide a major source of information on emerging problems for policymakers to remedy. In addition, these complaints provide evidence of potential wrongdoing required for policy-making by regulatory agencies and the judicial process. Thus, it is no surprise that agencies with consumer protection authority, including the Federal Trade Commission (FTC) and Consumer Finance Protection Bureau (CFPB), spend substantial resources collecting and analyzing consumer complaints.

One major concern of policymakers is understanding the problems that affect different American communities, for which consumer complaints are one guide. To give one example, Congress recently asked the FTC to develop a comprehensive strategy to reduce fraud in black and Hispanic communities. One of the main items of the FTC’s response was to “[l]aunch a pilot program to visit areas with low rates of consumer complaints about fraud” (Federal Trade Commission, 2016). Understanding which groups are affected by different types of fraud can also help assist the other prongs of the FTC’s response, such as conducting outreach campaigns to local community groups and local media, and developing education programs to help prevent fraud. If, say, minority communities experience different types of fraud than other communities, outreach and education programs should be targeted to the problems they face.

Unfortunately, we know very little about how the rates of complaints vary across different communities in American society. The reason for this is, despite a large empirical literature

on complaining behavior, only small samples on complaint behavior have been available for researchers. Researchers have used information from surveys (Singh, 1989), from one local BBB (Oster, 1980; Garrett and Toumanoff, 2010), or from the CFPB (Ayres et al., 2013; Begley and Purnanandam, 2017; Jung et al., 2017), which makes complaints publically available. Given the small samples and limited scope of most of these studies, it is unsurprising that Garrett and Toumanoff (2010) finds that the literature is divided on how demographics such as age, income, education, and race affect the likelihood of consumer complaint.¹ To take two recent studies, Ayres et al. (2013) with 2011 mortgage CFPB data finds that areas with more Hispanics, with more seniors, and with more college graduates complain more, and areas with higher median income complain less, while Garrett and Toumanoff (2010) finds the opposite for each demographic group using Wisconsin BBB data. These differences may reflect small samples, but they may also reflect heterogeneity across organizations receiving complaints, or the issues that consumers complain about.

In this paper, I provide new evidence on differences in per capita complaint rates across different communities using data from the Consumer Sentinel Network, a data source with orders of magnitude more complaints than used in past literature. The Consumer Sentinel database includes millions of consumer complaints received every year, with complaints on a vast range of topics received by federal and state government agencies, including the FTC and CFPB, as well as private actors such as the Better Business Bureaus (BBBs).² This

¹The literature on this topic is large; see, for example, beyond the papers cited above, Andreasen (1988), Bearden and Teel (1983), Liefeld et al. (1975), Moyer (1984), Andreasen and Best (1977), Hogarth et al. (2001b), and Hogarth et al. (2001a). For papers using CFPB data, Ayres et al. (2013) studies the determinants of 2011 mortgage complaints to the CFPB, Begley and Purnanandam (2017) examine how the Community Reinvestment Act may have affected victimization and so complaints from different communities, and Jung et al. (2017) show that political affiliation of a community has major effects on complaint rates, with higher complaint rates in more liberal communities.

²See <https://www.ftc.gov/enforcement/consumer-sentinel-network> for more details on the Con-

new dataset is both policy relevant, as it is designed for use by law enforcement agencies, and uniquely allows me to look at heterogeneity across the organizations that receive complaints and about the issues that consumers complain about. Doing so can help resolve the contradictions in previous research highlighted above.

Crucially, since most consumers provide their address, I can connect consumer complaints with zip code level demographics. Because the demographic information is at the zip code level, any inferences on demographics are best thought of as reflecting differences between different types of American communities. I compare complaint rates across areas with different racial demographics, looking at the fraction of black and Hispanic residents. I also examine several economic and cultural factors, including household income, unemployment rate, household size, rural status, median age, and share of college educated residents.

I find substantial differences in complaint rates between communities with different demographics. I first find that racial demographics affect complaint rates, comparing areas that are more than 75% black or Hispanic to areas with less than 5% of either group. After controlling for all other variables, heavily black areas have a 25% higher complaint rate than areas with a small black population, while heavily Hispanic areas complain 22% less than areas with few Hispanics. Education also matters; zip codes with a large share of college graduates complain at much higher rates. For example, areas in which college graduates are more than 60% of the population have 40% higher complaint rates than areas in which college graduates are less than 10% of the population. Complaint rates are also lower in areas with low unemployment and higher household size and in less urban areas. Surprisingly, while

sumer Sentinel Network. The Consumer Sentinel Network is a secure online database available only to law enforcement. I have been able to receive access as an employee of the FTC.

the literature puts a great deal of focus on age and income, I find fairly small differences in complaint rates between areas with different median household incomes and median ages.

I next demonstrate substantial heterogeneity in the relationship between per capita complaint rates and demographics across both the organizations that contribute to the database, and the consumer protection issues that consumers face. I separately analyze data from the BBBs, CFPB, and the FTC, which are the three largest organizations contributing to the Consumer Sentinel. I find similar patterns between complaint rates and demographics for complaints to the BBBs, FTC, and the overall Sentinel database. However, complaints to the CFPB have a very different relationship between complaint rates and demographics. For example, heavily black areas have a 119% increase in complaint rate relative to areas with few blacks, compared to 25% more for the entire database. The most heavily college educated areas have a 92% higher complaint rate to the CFPB relative to areas with few college educated residents, compared to a 40% higher complaint rate for the entire database. Heavily Hispanic areas complain slightly more to the CFPB, compared to declines for the entire Sentinel database. Thus, evidence on differences in complaint rates across communities using publically available complaints to the CFPB may not extrapolate to complaints to other agencies, or complaints on non-finance related topics.

I also demonstrate significant differences in the types of complaints received from communities with different demographic groups. The largest differences are that the rate of complaints about finance related issues, including banks and lenders, debt collection, and auto related problems, are much higher in heavily black areas. I find, for example, that the rate of complaints on auto related issues (including financing for car purchases) is 74% higher in heavily black areas, the rate of debt collection complaints is 69% higher, and the

rate of bank and lender complaints is 100% higher. Complaints about Banks and Sweepstakes and Prizes are quite different across demographic groups; for example, richer and more college educated areas have higher complaint rates about Banks and lower complaint rates about Sweepstakes and Prizes; older and more rural areas have more complaints about Sweepstakes related issues. These differences in complaint rates likely reflect the fact that American communities vary in the types of problems experienced by their consumers.

The paper proceeds as follows. [Section 2](#) describes the data used in this study. [Section 3](#) examines the demographic determinants of complaints to the Consumer Sentinel database, while [Section 4](#) examines how demographic communities vary in the issues that they complain about. [Section 5](#) then concludes.

2 Data

2.1 Consumer Sentinel Network

The Consumer Sentinel Network collects data on complaints from several sources – federal government agencies such as the Federal Trade Commission (FTC) and Consumer Finance Protection Bureau (CFPB), private actors such as the Better Business Bureaus (BBBs), and state and local government agencies.³ For the BBBs, the complaints provided to Consumer Sentinel are selected by the FTC to be those of national interest; for example, complaints about major national corporations would be more likely to be included than about local housepainters. In the 2012-2015 period, about 44% of BBB US and Canada complaints

³See <https://www.ftc.gov/enforcement/consumer-sentinel-network/reports> for the Consumer Sentinel Data Book, which contains further detail on the Consumer Sentinel as well as a wealth of statistics on the complaints included in it.

were reported to the Consumer Sentinel database. Since Consumer Sentinel has a five year data retention policy, I limit the sample of complaints to complaints filed from 2012 through 2015.⁴ The remaining dataset contains over 6.7 million complaints.

The main variable of interest is the complaining consumer’s zip code. Not all consumers providing complaints either live in a US state or provide a zip code. I exclude complaints without a zip code, as well as zip codes belonging to PO Boxes and Unique Organizations (such as businesses or universities that have their own zip code) and zip codes with a population of less than 100 in a given year. In addition, I only include one complaint for each unique full name, zip code, data contributor, and year, in order to prevent biases in zip code complaint rates from serial complainants.⁵ The resulting dataset has about 5.2 million complaints, or about 78% of the original dataset.⁶ Of these complaints, 1.7 million or 32.5% are contributed by the FTC, 1.4 million or 26.5% by the BBBs, 650,000 or 12.3% by the CFPB, and 313,000 or 6.0% by state and local agencies. Together, these four groups provide over three-quarters of the complaints in the dataset.

2.2 Census Demographics

I match complaint data from the Consumer Sentinel database with demographics from the 2008-2012 American Community Survey (ACS) at the zip code level. The Census has created the Zip Code Tabulation Area (ZCTA) in order to connect Census demographics to zip codes from addresses, because the zip code is not a traditional Census geography. The boundaries of zip codes and ZCTAs do not always perfectly line up, but the exclusion of zip codes for

⁴I also exclude identity theft complaints, and complaints from a large mobile app contributor which does not provide geographic information.

⁵Data contributors are different organizations that provide data to the Consumer Sentinel database.

⁶I also exclude zip codes missing the Census demographic variables described below.

PO Boxes and Unique Organizations should help reduce differences between the two.

I examine several demographic factors that likely proxy for cultural and economic factors that could affect the likelihood that a consumer complains. I first examine ethnic demographics, including the fraction of the zip code population that is black, that is of Hispanic origin, and that is Asian. Second, I examine information on the economic and family situation of the residents in the zip code, including the median household income, median household size, median age, the unemployment rate, and the fraction of the zip code population that is college educated. Finally, I include a measure of urbanization developed by the Economic Research Service of the Department of Agriculture.⁷

In order to examine potential non-linear effects of each variable, I divide each variable into several categories, each of which is detailed in [Table I](#). When possible, I try to include categories for both the lowest quantiles of values and highest quantiles of values. For example, for both college education and median household income, the categories selected are very close to the bottom 5 percent, the 5th to 25th quantile, 25th to 75th quantile, 75th to 95th quantile, and top 5 percent zip codes. Some variables are skewed, such as ethnic composition or urbanization, as most zip codes are Metropolitan and contain a small share of blacks and Hispanics. For these skewed variables, a large fraction of zip codes are in the first category (such as Metropolitan areas and areas with less than 5 percent black or Hispanic population). [Appendix A](#) examines the quantiles of the variables below weighted by 2010 Census population.

⁷This measure is the Rural Urban Commuting Area (RUCA). It was originally created at the census tract level, and was then aggregated to the zip code level. See <http://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes.aspx> and <https://ruralhealth.und.edu/ruca> for more information.

Table I Variable Definitions

Variable	Categories
Percent Black	0-5, 5-25, 25-50, 50-75, 75-100
Percent Hispanic	0-5, 5-25, 25-50, 50-75, 75-100
Percent Asian	0-25, 25-100
Median Age	0-30, 30-40, 40-45, 45-50, > 50
Median Household Size	0-2, 2-2.5, 2.5-3, 3-3.5, > 3.5
Unemployment Rate	0-3, 3-5, 5-7.5, 7.5-10, >10
Urbanization	Metropolitan, Micropolitan, Small Town, Rural
Median Household Income (thousands)	0-30, 30-40, 40-70, 70-100, > 100
Percent College Educated	0-10, 10-20, 20-40, 40-60, > 60

Note: All datasets are as described in the text. Categories include the upper threshold in general (so a zip code that is 5 percent black is in the 0-5% category, not the 5-25% category). Zip codes are defined as Metropolitan if the USDA assigns the zip code a Rural Urban Commuting Area (RUCA) score of 1 to 3, Micropolitan with a RUCA score of 4 to 6, Small Town with a RUCA score of 7 to 9, and Rural with a RUCA score of 10.

3 Who complains to Consumer Sentinel?

A simple way to examine how complaint rates vary across communities with different demographics is through a plot of how the average complaint rate varies with community demographics. In [Figure 1](#), I do this for communities with different concentrations of blacks and Hispanics for complaints in 2015; the red solid and blue dashed lines depict the average complaint rate for communities defined by their share of population that is black and Hispanic, respectively. The estimates are based upon a nonparametric local regression, with the grey area surrounding each graph representing the 95% confidence interval.⁸

While the average complaint rates are not monotonic, [Figure 1](#) demonstrates that the average complaint rate tends to be lower in areas with a greater share of Hispanic residents.

After a small rise in complaint rates from areas that are close to 0% Hispanic to areas

⁸Local regressions fit a different local polynomial regression around each value of the independent variable that weights data points around this value heavily, in order to not impose parametric assumptions on the relationship between variables. See [Pagan and Ullah \(1999\)](#).

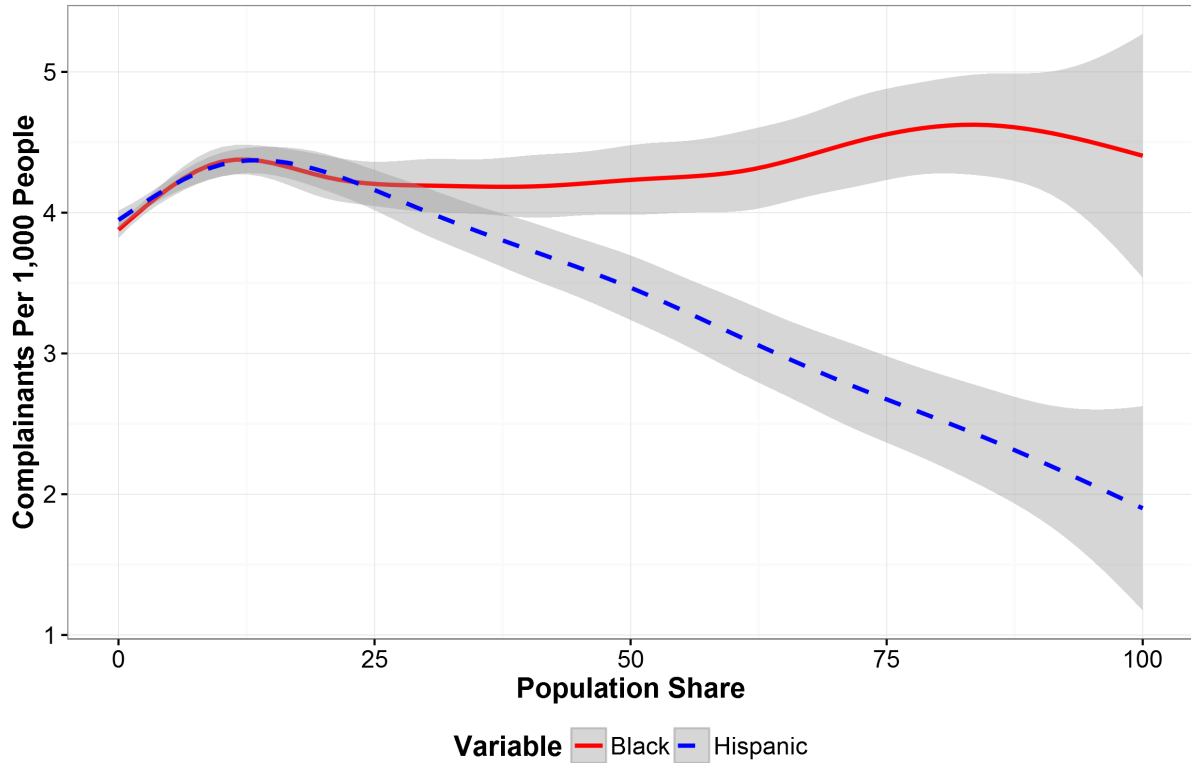


Figure 1 Complaint Rates For Black and Hispanic Communities in 2015

Note: Solid, red line is for percent black and dashed, blue line is for percent Hispanic. Estimates based upon a nonparametric loess regression.

that are 15% Hispanic, the complaint rate steadily falls as areas become more Hispanic. Communities that are close to 100% Hispanic have about half the complaint rate of areas that are 0% Hispanic. For black communities, by contrast, the complaint rate is much more constant with respect to the share of the population that is black. Thus, communities that are almost 100% black have about the same complaint rate as communities that are 0% black.

While [Figure 1](#) shows that different demographic communities have different complaint rates, these communities differ on several other factors, including median age, median income, education, and urbanization. In order to disentangle the effects of several different

demographic factors, I estimate the following regression specification:

$$\log(E(y_{zst})) = \beta D_{zs} + \eta \log Population_{zst} + \gamma_t + \delta_s \quad (1)$$

where z is the zipcode, s the state, and t the year. The dependent variable y_{zst} is the average complaint rate at the zip code, year level, measured as the number of complainants per 1,000 population. In this specification, the log of the expected value of the complaint rate is linear, so all estimates of the demographic effects β can easily be translated into percent changes compared to the baseline group, holding all other variables fixed.⁹ D_{zs} are the zip code level demographics binned as in [Table I](#), γ_t are year fixed effects, and δ_s state fixed effects. I include state fixed effects because many of the contributors are state agencies, which could skew state-level differences in complaint rates. The effects of demographics are identified by variation within states. I also control for the log of the population of the zip code in year t .

I first estimate [equation \(1\)](#) for all complaints in the Consumer Sentinel database. In [Figure 2](#), I summarize the results of this regression across all of the different demographic factors. The y-axis indexes different demographic factors; I include the last category for each demographic factor in [Table I](#). For each such factor, I plot the point estimate and 95% confidence interval for the percent change in per-capita complaint rate for a given category of the variable compared to the baseline category, which is the first category in [Table I](#). In [Figure 3](#), I include other categories for the same demographic factors.

I first find substantial differences with racial demographics, with higher per-capita complaint rates in heavily black areas and lower complaint rates in heavily Hispanic areas.

⁹This specification is also known as a Poisson regression, although I estimate heteroskedasticity robust standard errors and so do not impose the distributional assumptions of the Poisson.

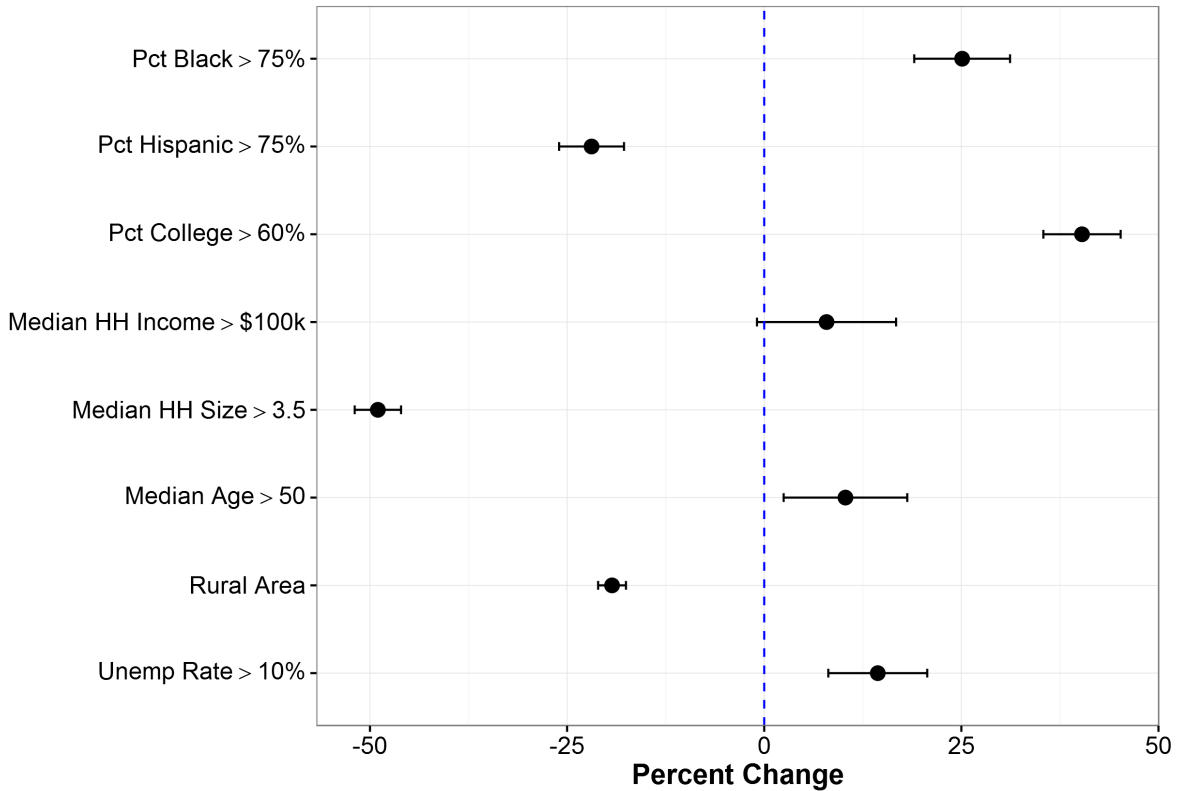


Figure 2 Percent Change in Per Capita Complaint Rate by Demographic Factors

Note: The graph depicts the percent change in the per capita complaint rate for different demographic factors based on estimates of [equation \(1\)](#). The blue, dashed vertical line indicates a value of zero, so the proportion of complaining consumers in the category is the same as the proportion of population, after controlling for all other variables in [Table I](#), relative to the baseline, omitted group. The percent change is relative to an omitted group; the baseline, omitted category is 0-5% for percentage black, 0-5% for percentage Hispanic, 0-10% for percent college educated, less than 30,000 dollars for median household income, less than 2 people for median household size, less than 3% for the unemployment rate, less than 30 for median age, and Metropolitan Area for area density.

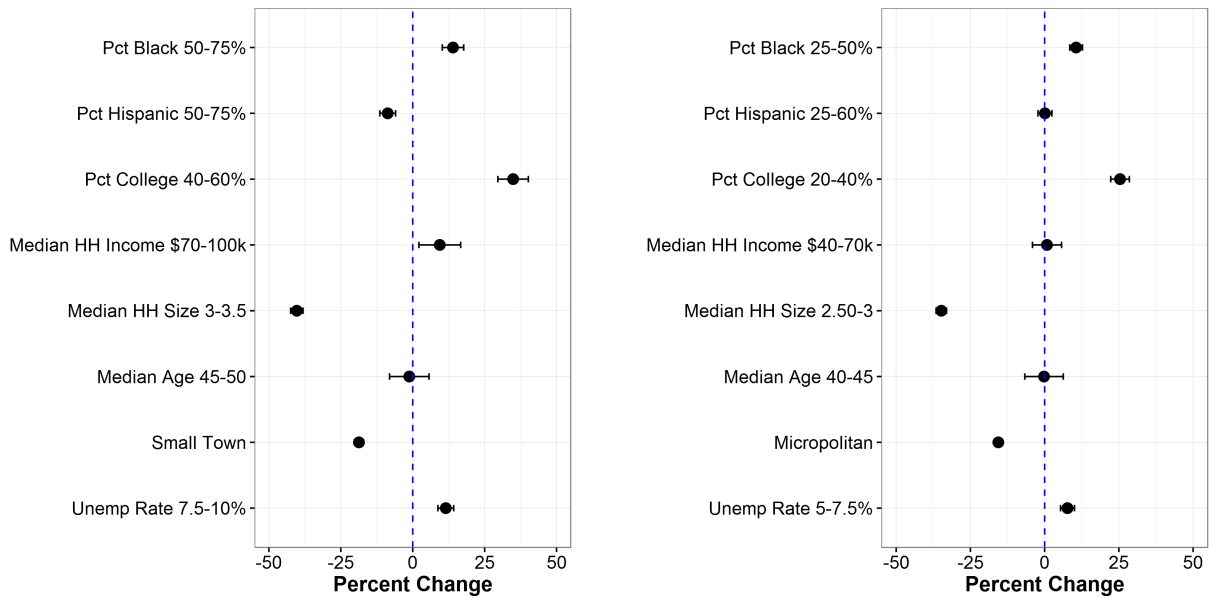


Figure 3 Percent Change in Per Capita Complaint Rate by Demographic Factors: Additional Categories

Note: The graph depicts the percent change in the per capita complaint rate for different demographic factors based on estimates of [equation \(1\)](#). The blue, dashed vertical line indicates a value of zero, so the proportion of complaining consumers in the category is the same as the proportion of population, after controlling for all other variables in [Table I](#), relative to the baseline, omitted group. The percent change is relative to an omitted group; the baseline, omitted category is 0-5% for percentage black, 0-5% for percentage Hispanic, 0-10% for percent college educated, less than 30,000 dollars for median household income, less than 2 people for median household size, less than 3% for the unemployment rate, less than 30 for median age, and Metropolitan Area for area density.

Communities with a 50-75% black population have about a 14% higher complaint rate than those with a 0-5% black population, holding all other variables fixed, and communities with a greater than 75% black population have a 25% higher complaint rate. Communities with a higher Hispanic share of the population have lower complaint rates; areas with a 50-75% Hispanic population have a 9% lower complaint rate, and with greater than 75% Hispanic population have a 22% lower complaint rate, compared to areas with less than 5% Hispanics. The confidence intervals around these estimates are fairly tight, so all of these estimates are statistically significantly different from zero.

Areas with a larger share of college graduates complain at much higher rates. Communities with a 20-40% college educated population have about a 25% higher complaint rate than areas where less than 10 percent of the population is college educated population; the increase is 35% for communities with a 40-60% college educated population and 40% for communities with a 60% or higher college population. All of these estimates are tightly estimated and statistically significantly different from zero.

Areas with greater household size, and areas that are more rural, have lower complaint rates, while areas with higher unemployment have higher complaint rates. For example, areas with an average household size of 3 to 3.5 have 40 percent lower complaint rates than areas with an average household size less than 2, and areas with an average household size greater than 3.5 have a 49 percent lower complaint rate. Compared to Metropolitan areas, Micropolitan areas have 16% lower complaint rates and Small Towns and Rural areas have 19% lower complaint rates. Areas with higher unemployment rates also have higher complaint rates, with areas with 5% to 7.5% unemployment, 7.5% to 10% unemployment, and greater than 10% unemployment having 8%, 12%, and 14% higher unemployment rates than

areas with an unemployment rate of less than 3%. These estimates are precisely estimated.

Surprisingly, I find very small effects for household income and median age. The estimates for income are much smaller and often not statistically different from zero. For example, the estimates imply that areas with greater than a hundred thousand dollars in median household income have only a 8% greater complaint rate than areas with less than thirty thousand dollars in median household income. For median age, the estimates are also small, with most of the age groups having estimates similar to areas with a median age less than 30. Areas with a median age greater than 50 have only about a 10% higher complaint rate than areas with a median age less than 30.

I next estimate [equation \(1\)](#) for three of the largest data contributors – the BBBs, the FTC, and the CFPB – separately. The BBBs and FTC collect complaints on similar consumer protection violations, but the BBBs are private and the FTC a federal government agency. Thus, any differences between the BBBs and FTC may shed light on whether the demographics of consumers that complain to the government are different than those complaining to a third party NGO. The CFPB specializes in complaints about financial services, so its complaints may have very different demographics than those of the BBBs or FTC which include a broad spectrum of topic areas within consumer fraud.

I also look at how complaint rates vary with demographics for the FTC, BBBs, and CFPB separately. I report results for the last category for each demographic factor in [Table I](#) in [Figure 4](#), and for other categories in [Figure 5](#). The results for all complaints are in red circles, for the BBBs in blue triangles, for the CFPB in green squares, and for the FTC in purple crosses; estimates for each group are also depicted in that order. Coefficient estimates for the FTC and BBBs tend to have fairly similar patterns to each other and to those of the

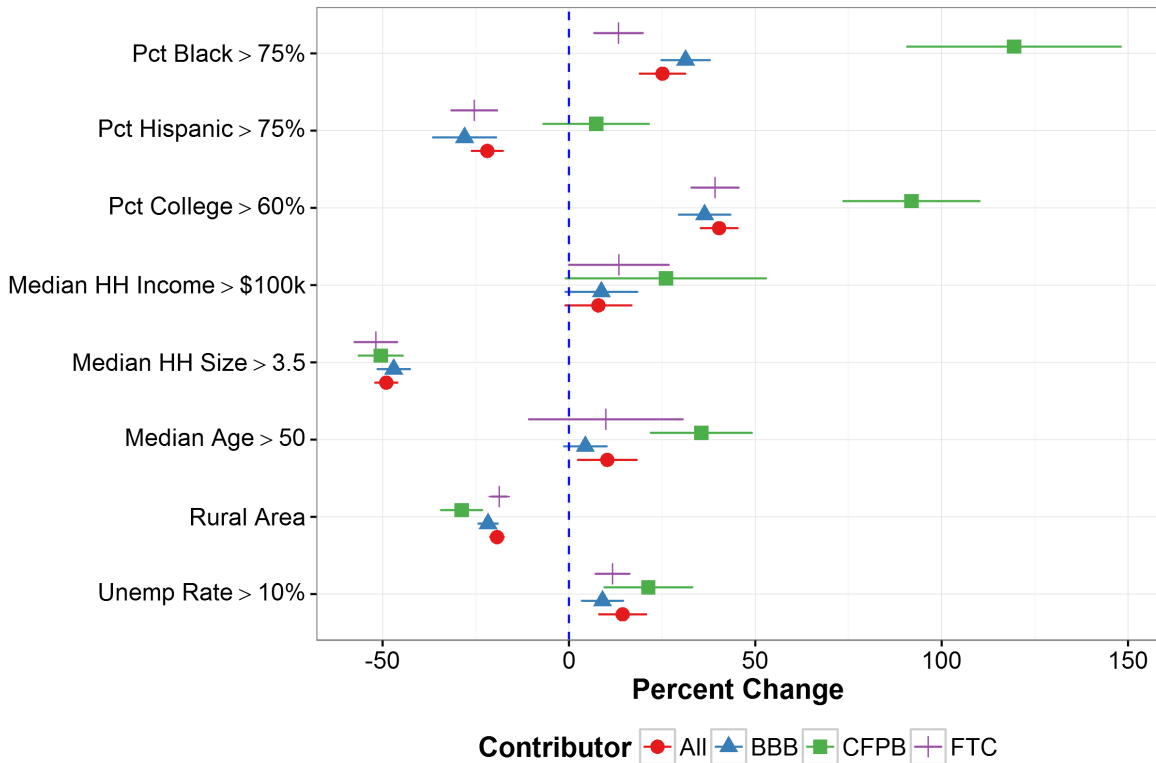


Figure 4 Percent Change in Per Capita Complaint Rate by Demographic Factors by Data Contributor

Note: The graph depicts the percent change in the per capita complaint rate for different demographic factors based on estimates of equation (1); estimates for All complaints are red circles, for BBB complaints blue triangles, for CFPB complaints green squares, and for the FTC purple crosses. The blue, dashed vertical line indicates a value of zero, so the proportion of complaining consumers in the category is the same as the proportion of population, after controlling for all other variables in Table I, relative to the baseline, omitted group. The percent change is relative to an omitted group; the baseline, omitted category is 0-5% for percentage black, 0-5% for percentage Hispanic, 0-10% for percent college educated, less than 30,000 dollars for median household income, less than 2 people for median household size, less than 3% for the unemployment rate, less than 30 for median age, and Metropolitan Area for area density.

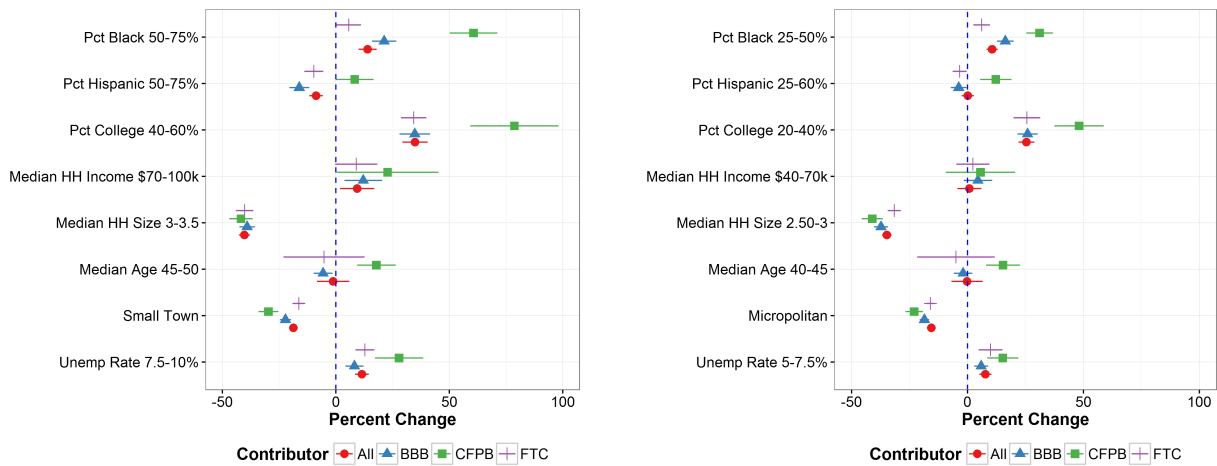


Figure 5 Percent Change in Per Capita Complaint Rate by Demographic Factors by Data Contributor: Additional Categories

Note: The graph depicts the percent change in the per capita complaint rate for different demographic factors based on estimates of equation (1); estimates for All complaints are red circles, for BBB complaints blue triangles, for CFPB complaints green squares, and for the FTC purple crosses. The blue, dashed vertical line indicates a value of zero, so the proportion of complaining consumers in the category is the same as the proportion of population, after controlling for all other variables in Table I, relative to the baseline, omitted group. The percent change is relative to an omitted group; the baseline, omitted category is 0-5% for percentage black, 0-5% for percentage Hispanic, 0-10% for percent college educated, less than 30,000 dollars for median household income, less than 2 people for median household size, less than 3% for the unemployment rate, less than 30 for median age, and Metropolitan Area for area density.

overall Consumer Sentinel database; the confidence intervals of the estimates for the entire database, the FTC alone, and the BBBs alone overlap for almost all demographic factors. One exception is for percentage black; areas with 75-100% black residents have 31% more complaints from the BBB but only 13% more complaints from the FTC, relative to areas with few blacks.

The CFPB, however, often has very different patterns with respect to demographics. Although the estimates for the CFPB are noisier than for the overall database, heavily black and Hispanic areas have a much greater increase in CFPB complaints than areas with few black or Hispanic residents compared to the overall Sentinel database. Areas with a 50-75% share of blacks have a 61% higher complaint rate to the CFPB than areas with less than 5% blacks, and areas with a greater than 75% share of blacks have a 119% increase in complaints to the CFPB. Heavily Hispanic areas have 7 to 8% higher complaint rates to the CFPB, compared to declines in complaints for heavily Hispanic areas in the overall sample. Areas with more college educated residents also complain at higher rates to the CFPB, even compared to the overall sample; the increase compared to communities with less than a 10% college educated population is 79% for communities with 40-60% college educated population and 92% for communities with a 60% or higher college population.

Non-metropolitan areas also have substantially lower complaint rates to the CFPB, and older areas have higher complaint rates, compared to the full Consumer Sentinel dataset. For example, Rural areas have a 29% lower complaint rate to the CFPB relative to Metropolitan areas, compared to 19% for the full sample. Areas with a median age above 50 have a 36% higher complaint rate to the CFPB relative to the youngest areas, while for all complaints the effect is only a 10% increase. I also find higher complaint rates in areas with high

income (26% for CFPB complaints, compared to 8% for all complaints) and areas with high unemployment (21% for CFPB complaints, compared to 14% for all complaints) compared to the overall sample, although these estimates are often not statistically different than the estimates for the overall sample. These differences between the CFPB and other contributors could be due to the newness of the agency and the attention it has gathered, or they could be due to differences between consumers complaining about financial services and consumers with other types of complaints.¹⁰

To sum up, for the overall Consumer Sentinel dataset, I find higher complaint rates in heavily black areas, more college educated areas, and areas with greater unemployment. I find lower complaint rates in heavily Hispanic areas, more rural areas, and areas with greater household size. I find relatively small differences across areas with differences in median household income and median age. While the BBBs and FTC have similar complaint rates to each other, and to the overall database, complaint rates of the CFPB have very different patterns with respect to demographics.

4 Do Different Communities Complain About Different Issues?

While the above analysis demonstrated that complaint rates vary considerably across communities with different demographics, the issues that different communities complain about may also differ. I examine this question using the classification of complaints into differ-

¹⁰For example, a large fraction of the CFPB complaints are about banks. Consumers may be more likely to complain about a company with which they have a supposed trusted relationship, resulting in different demographic patterns than for other types of companies.

ent categories in Consumer Sentinel. I examine six of the largest categories: Auto-Related Complaints (“Auto”), Banks and Lenders (“Bank”), Debt Collection (“DebtCollection”), Impostor Scams (“Imposter”), Prizes, Sweepstakes and Lotteries (“Prize”), and Telephone and Mobile Services (“Telecom”).¹¹ For each category, I calculate the share of complaints in a zip code from that category. I then estimate [equation \(1\)](#) using complaints only from the given category.

I first examine complaints related to finance, using complaints about Auto, Bank, and Debt Collection issues. Auto complaints are likely related to finance as a large share of such complaints are about auto financing. I display estimates estimates of the percent change in per-capita complaint rate for a given category of the variable compared to the baseline category, which is the first category in [Table I](#), in [Figure 6](#) and [Figure 7](#). The results for Auto complaints are in red circles, for Bank complaints in blue triangles, and for Debt Collection complaints in green squares.

I find much larger per-capita complaint rates for heavily black communities for finance related issues. Heavily black areas have much higher complaint rates about Bank, Auto, and Debt Collection complaints. Areas with a 75 to 100% black population have a 69% higher rate of Debt Collection complaints, a 74% higher rate of Auto complaints, and a 100% higher rate of Bank complaints compared to areas in which blacks are less than 5% of the population. Areas with a 50 to 75% black population have a 41% higher rate of Debt Collection complaints, a 52% higher rate of Auto complaints, and a 62% higher rate of Bank complaints compared to areas in which blacks are less than 5% of the population.

¹¹Each complaint is given one of 123 codes, which are then aggregated into 30 categories for published reports on complaints in the Consumer Sentinel database. Of the eight largest categories, I exclude “Other” complaints and complaints on Shop-at-Home and Catalog Sales (“Catalog”).

To compare, areas with a greater than 75% black population have a 25% higher complaint rate on all complaints relative to areas with few blacks, and areas with a 50 to 75% black population have a 14% larger complaint rate.

Higher complaint rates for heavily black communities on finance related issues is not due to differences in complaints to different contributors; for example, to differences between complaining to the FTC and CFPB. Just looking only at FTC complaints, heavily black areas have a 61% higher rate of Debt Collection complaints, a 78% higher rate of Auto complaints, and a 121% higher rate of Bank complaints compared to areas with few blacks. [Appendix B](#) contains figures similar to [Figure 6](#) for all variables looking at FTC only complaints.

I find smaller differences for most of the other demographic groups on finance related issues. Bank related complaints have the largest differences in complaint rates compared to my estimates for all complaints. I find a 5% lower complaint rate for heavily Hispanic areas for bank complaints (compared to a 22% decline for all complaints), a 65% rise in bank related complaints for heavily college educated areas (compared to a 40% rise for all complaints), and a 41% rise in bank related complaints for the oldest areas (compared to a 10% rise for all complaints). Finally, Micropolitan, Small Town, and Rural areas have a 24 to 33% lower complaint rate on bank related complaints, compared to 16 to 19% lower complaint rates for all complaints.

I next examine complaints on non-finance issues, using complaints about Imposter, Prize, and Telecom issues. I display estimates estimates of the percent change in per-capita complaint rate for a given category of the variable compared to the baseline category, which is the first category in [Table I](#), in [Figure 8](#) and [Figure 9](#). The results for Imposter complaints are in red circles, for Prize complaints in blue triangles, and for Telecom complaints in green

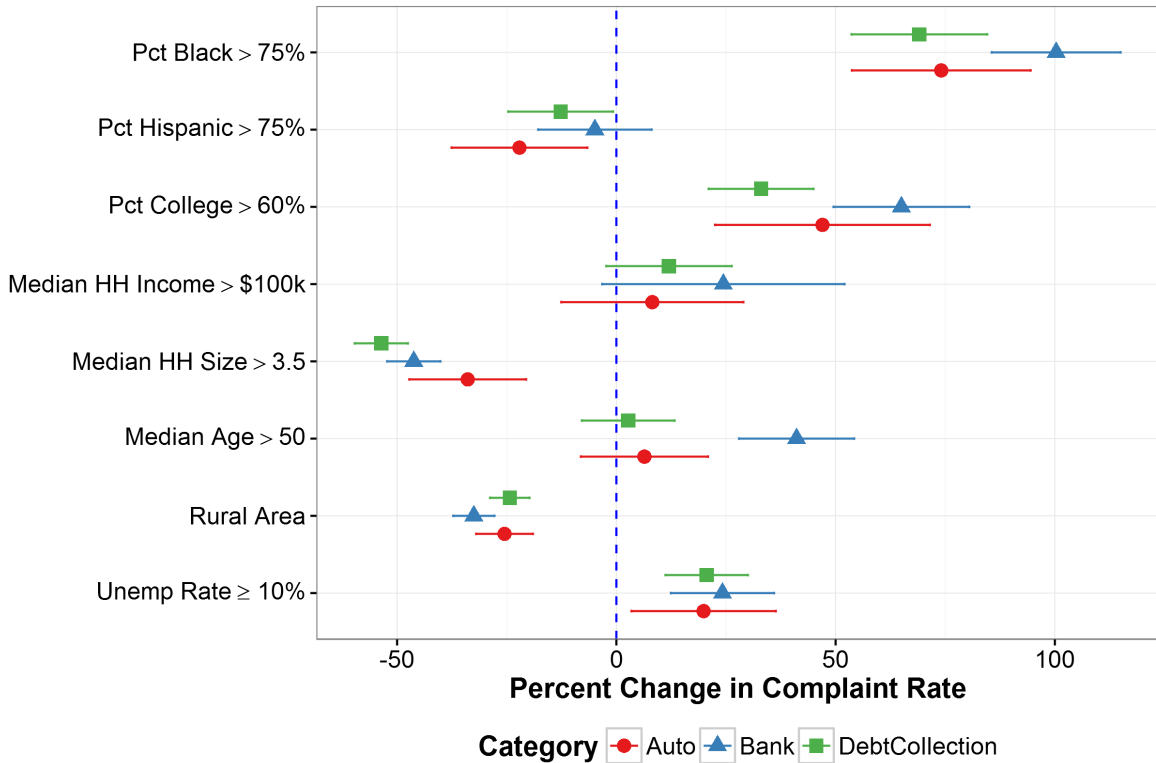


Figure 6 Percent Change in Per Capita Complaint Rate by Demographic Factors by Complaint Type for Finance Related Complaints

Note: The graph depicts the percent change in the per capita complaint rate for different demographic factors based on estimates of equation (1); estimates for Auto complaints are red circles, for Bank related complaints blue triangles, and for Debt Collection complaints green squares. The blue, dashed vertical line indicates a value of zero, so the proportion of complaining consumers in the category is the same as the proportion of population, after controlling for all other variables in Table I, relative to the baseline, omitted group. The percent change is relative to an omitted group; the baseline, omitted category is 0-5% for percentage black, 0-5% for percentage Hispanic, 0-10% for percent college educated, less than 30,000 dollars for median household income, less than 2 people for median household size, less than 3% for the unemployment rate, less than 30 for median age, and Metropolitan Area for area density.

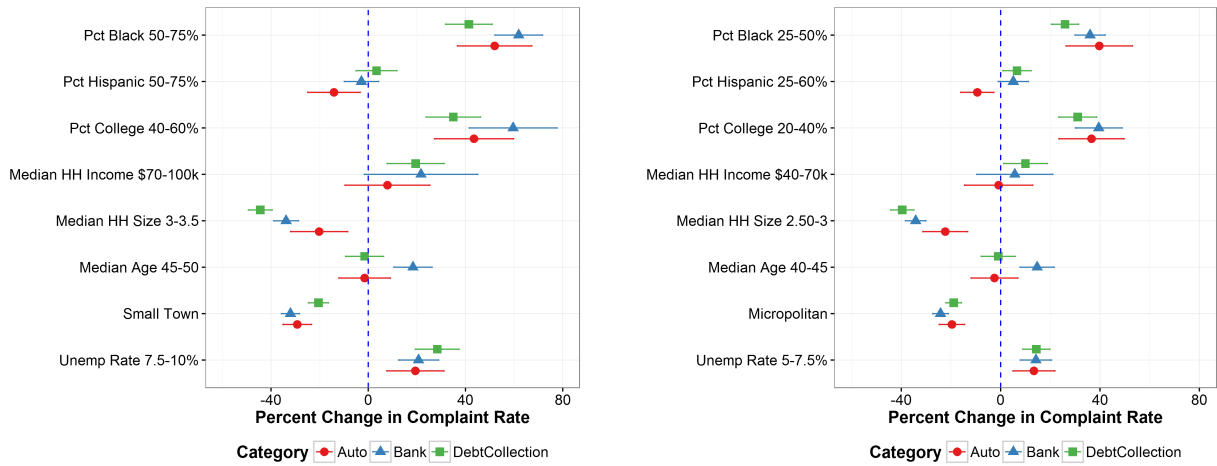


Figure 7 Percent Change in Per Capita Complaint Rate by Demographic Factors by Complaint Type for Finance Related Complaints: Additional Categories

Note: The graph depicts the percent change in the per capita complaint rate for different demographic factors based on estimates of equation (1); estimates for Auto complaints are red circles, for Bank related complaints blue triangles, and for Debt Collection complaints green squares. The blue, dashed vertical line indicates a value of zero, so the proportion of complaining consumers in the category is the same as the proportion of population, after controlling for all other variables in Table I, relative to the baseline, omitted group. The percent change is relative to an omitted group; the baseline, omitted category is 0-5% for percentage black, 0-5% for percentage Hispanic, 0-10% for percent college educated, less than 30,000 dollars for median household income, less than 2 people for median household size, less than 3% for the unemployment rate, less than 30 for median age, and Metropolitan Area for area density.

squares.

Here, I find large differences in demographics for complaints on Prizes, Sweepstakes, and Lotteries compared to all complaints. Heavily minority areas complain at lower rates on these issues; for example, heavily black areas have a 10% lower rate of complaints, and heavily Hispanic areas a 48% lower rate of complaints, for Prize complaints, compared to areas with few minorities. High income and highly college educated areas also have lower rates of Prize complaints; the highest income areas have a 18% lower rate of complaints than the lowest income areas and the most college educated areas have a 35% lower rate of complaints than the least college educated areas.

Instead, older and more rural areas have higher rates of complaints on Prize related issues. Non-metropolitan areas have an 2 to 7% higher complaint rate for Prize complaints than metropolitan areas, compared to substantial declines on all complaints. The oldest areas have a 27% higher share of complaints for Prize complaints relative to the youngest areas.

I also find differences in complaint rates on Imposter issues for some demographic groups compared to all complaints. Heavily black areas complain about 14% less about Imposter issues, while the oldest areas complain about 34% more. For Telecom issues, complaint rates across demographic groups are not very different from complaint differences for all complaints.

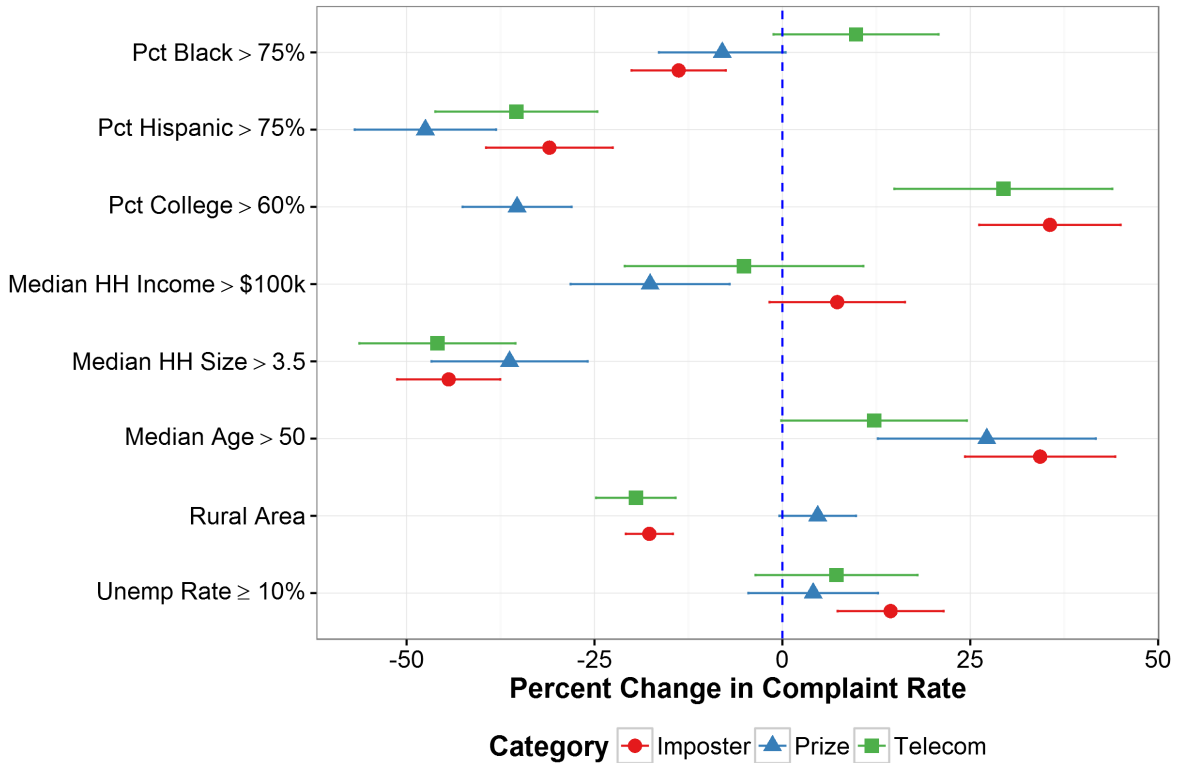


Figure 8 Percent Change in Per Capita Complaint Rate by Demographic Factors by Complaint Type for Non-Finance Related Complaints

Note: The graph depicts the percent change in the per capita complaint rate for different demographic factors based on estimates of equation (1); estimates for Imposter complaints are red circles, for Prize related complaints blue triangles, and for Telecom complaints green squares. The blue, dashed vertical line indicates a value of zero, so the proportion of complaining consumers in the category is the same as the proportion of population, after controlling for all other variables in Table I, relative to the baseline, omitted group. The percent change is relative to an omitted group; the baseline, omitted category is 0-5% for percentage black, 0-5% for percentage Hispanic, 0-10% for percent college educated, less than 30,000 dollars for median household income, less than 2 people for median household size, less than 3% for the unemployment rate, less than 30 for median age, and Metropolitan Area for area density.

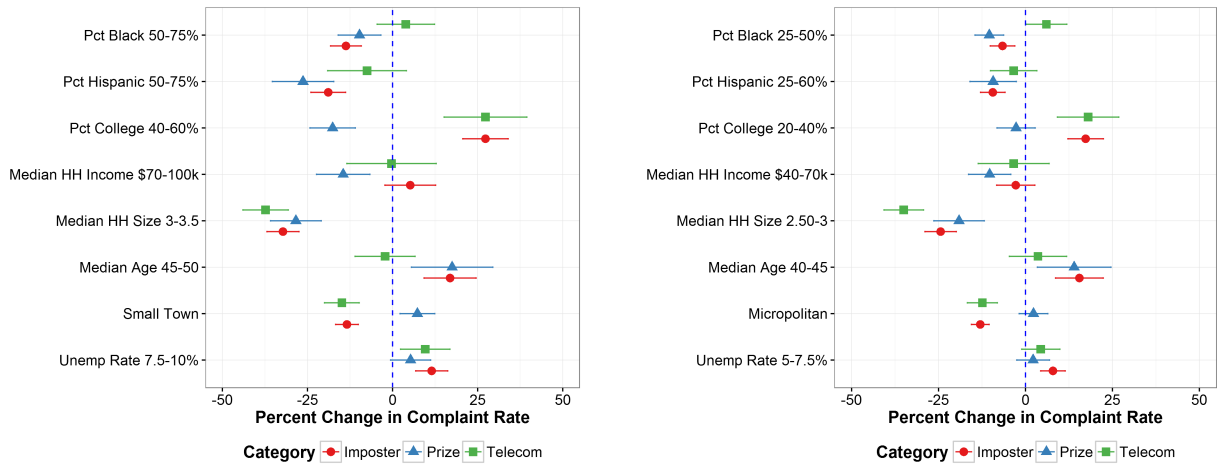


Figure 9 Percent Change in Per Capita Complaint Rate by Demographic Factors by Complaint Type for Non-Finance Related Complaints: Additional Categories

Note: The graph depicts the percent change in the per capita complaint rate for different demographic factors based on estimates of equation (1); estimates for Imposter complaints are red circles, for Prize related complaints blue triangles, and for Telecom complaints green squares. The blue, dashed vertical line indicates a value of zero, so the proportion of complaining consumers in the category is the same as the proportion of population, after controlling for all other variables in Table I, relative to the baseline, omitted group. The percent change is relative to an omitted group; the baseline, omitted category is 0-5% for percentage black, 0-5% for percentage Hispanic, 0-10% for percent college educated, less than 30,000 dollars for median household income, less than 2 people for median household size, less than 3% for the unemployment rate, less than 30 for median age, and Metropolitan Area for area density.

5 Conclusion

In this study, I have found substantial evidence that consumer complaints vary across communities using a massive dataset of millions of consumer complaints. Communities that are heavily black, more college educated, and have greater unemployment have higher complaint rates, while heavily Hispanic areas, more rural areas, and areas with greater household size have lower complaint rates. In addition, I have shown substantial heterogeneity in how complaint rates vary across demographic groups across organizations that receive complaints, and across consumer protection issues that consumers face. In particular, complaints to the CFPB have very different patterns than those to the BBBs or the FTC, with the CFPB receiving much higher rates of complaints from heavily black and heavily college educated areas. I also find heavily black areas have much greater complaint rates on finance related issues, while different demographic communities vary substantially in their share of complaints on prize and sweepstake frauds.

This evidence on how complaints vary across communities could help improve the activities of policymakers in several ways. First, by understanding the unique needs of different communities, policymakers could provide a more targeted outreach to reflect the issues that different communities face. The FTC and other regulatory agencies regularly both hold meetings and events across the country about fraud, and provide a large amount of information intended to help consumers recognize and avoid fraud. Given limited resources, targeting outreach events and information campaigns to the communities most heavily affected by that type of fraud may improve the effectiveness of these approaches.

Doing so may require policymakers to understand how the differences in per capita complaint rates reported in this paper relate to victimization rates. In [Raval \(2018\)](#), I show how one can construct an implied victimization rate by combining the estimates of per-capita complaint rate differences in this paper with evidence on how the propensity to complain varies across communities. In particular, given that [Raval \(2018\)](#) shows that heavily black areas are less likely to complain, much larger complaint rates on finance related issues in heavily black areas likely reflect much larger rates of victimization for financial issues in black communities.

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A Demographics

Table A-1 contains the 1st, 5th, 10th, 25th, 50th, 75th, 90th, 95th, and 99th percentile quantiles of each variable across zip codes. The quantiles are estimated after weighting each zip code by its 2010 population. All of the ethnic demographics are heavily skewed – half of the American population lives in zip codes whose population is less than 5 percent black, less than 8 percent Hispanic, and less than 2 percent Asian. On the other hand, majority black and majority Hispanic zip codes each comprise more than 5 percent of population weighted zip codes. The measure of urbanization is similarly skewed. Values between 1 to 3 indicate metropolitan areas; about 83.5 percent of zip code residents in our dataset live in metropolitan areas, compared to 9 percent that live in micropolitan areas (values between 4 and 6), 4.5 percent in small towns (values between 7 and 9), and 3 percent in rural areas (values between 10 and 11).¹²

The other variables are somewhat less skewed. The median age for the median zip code is 37.5, with the bottom 5 percent of zip codes with a median age below 28 and the top 5 percent of zip codes with a median age above 47. The median household size is 2.6 for the median zip code, compared to below 2.1 for the bottom 5 percent of zip codes and above 3.5 for the top 5 percent of zip codes. The unemployment rate for the median zip code is 5.6 percent; the bottom 5 percent of zip codes have an unemployment rate below 2.7 percent while the top 5 percent of zip codes have an unemployment rate above 10.5 percent. For the median zip code, the median household income is 52 thousand dollars; the bottom 5 percent have a median income below 29 thousand dollars and the top 5 percent have a median income above 100 thousand dollars. Lastly, in the median zip code about 24 percent of the 25 year old and above population have completed college, compared to less than 8.6 percent for the bottom 5 percent of zip codes and above 61.2 percent for the top 5 percent of zip codes.

B Changes in the Complaint Rate by Demographics

¹²Because we exclude PO Boxes, we likely miss some of the population living in rural areas, who are more likely to use PO Boxes. Compared to the overall distribution, we have a slightly higher fraction of the population in metropolitan areas and a slightly lower fraction of the population living in micropolitan, small town, and especially rural areas.

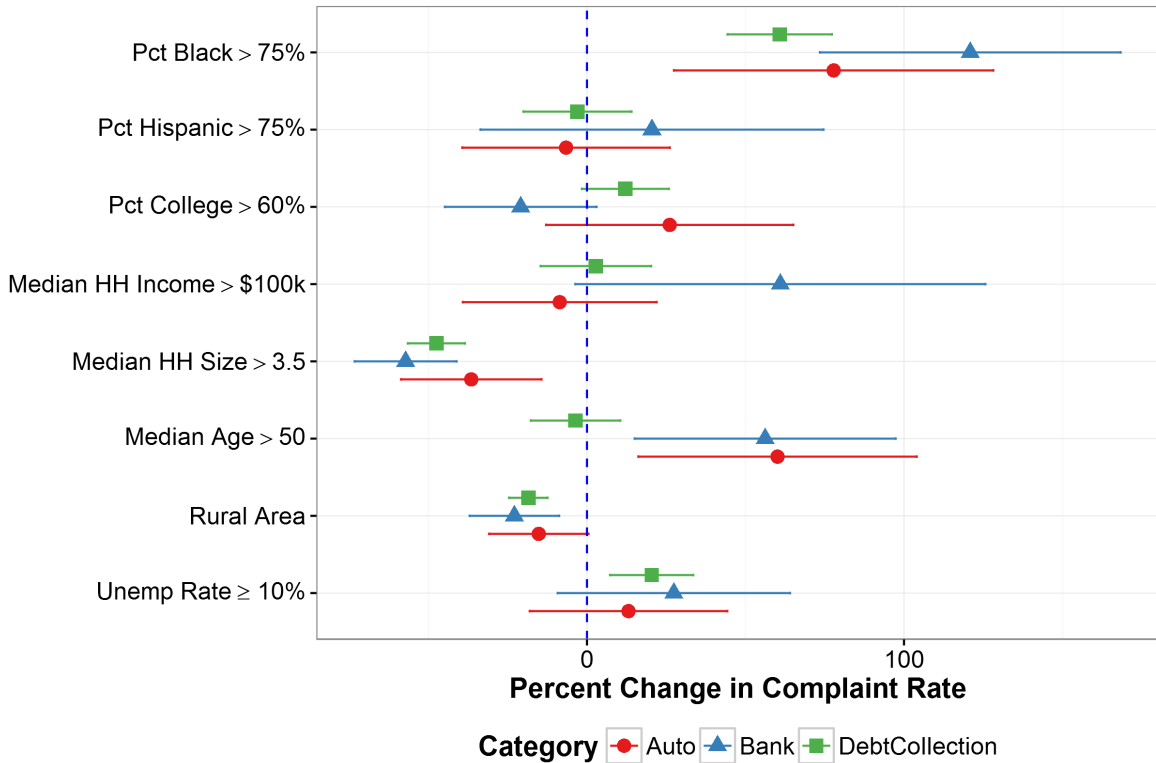


Figure 10 Percent Change in Per Capita Complaint Rate by Demographic Factors by Complaint Type for Finance Related Complaints, FTC Only Complaints

Note: The graph depicts the percent change in the per capita complaint rate for different demographic factors based on estimates of equation (1); estimates for Auto complaints are red circles, for Bank related complaints blue triangles, and for Debt Collection complaints green squares. The blue, dashed vertical line indicates a value of zero, so the proportion of complaining consumers in the category is the same as the proportion of population, after controlling for all other variables, relative to the baseline, omitted group. The percent change is relative to an omitted group; the baseline, omitted category is 0-5% for percentage black, 0-5% for percentage Hispanic, 0-10% for percent college educated, less than 30,000 dollars for median household income, less than 2 people for median household size, less than 3% for the unemployment rate, less than 30 for median age, and Metropolitan Area for area density. Only complaints to the FTC are included.

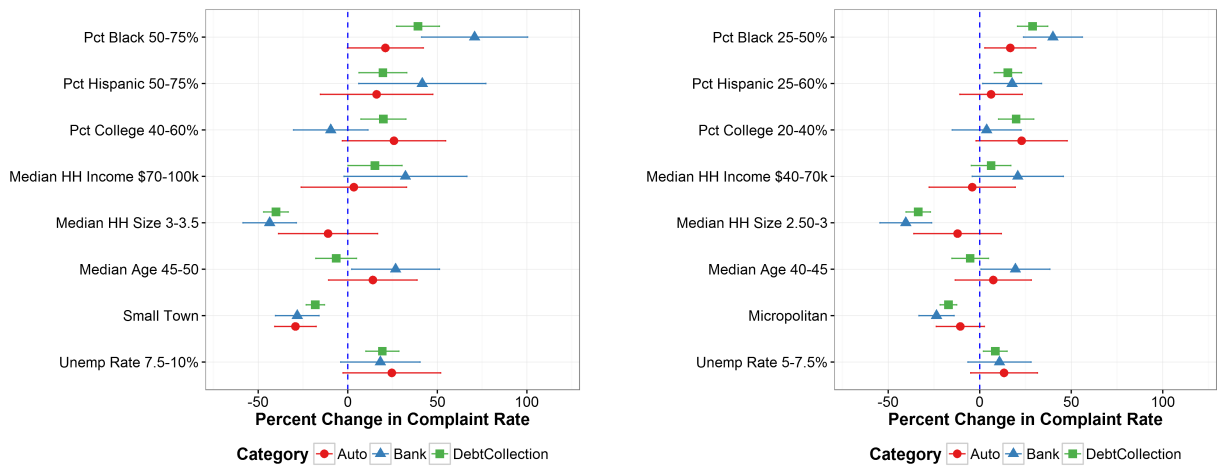


Figure 11 Percent Change in Per Capita Complaint Rate by Demographic Factors by Complaint Type for Finance Related Complaints, FTC Only Complaints: Additional Categories

Note: The graph depicts the percent change in the per capita complaint rate for different demographic factors based on estimates of equation (1); estimates for Auto complaints are red circles, for Bank related complaints blue triangles, and for Debt Collection complaints green squares. The blue, dashed vertical line indicates a value of zero, so the proportion of complaining consumers in the category is the same as the proportion of population in the category, after controlling for all other variables, relative to the baseline, omitted group. The percent change is relative to an omitted group; the baseline, omitted category is 0-5% for percentage black, 0-5% for percentage Hispanic, 0-10% for percent college educated, less than 30,000 dollars for median household income, less than 2 people for median household size, less than 3% for the unemployment rate, less than 30 for median age, and Metropolitan Area for area density. Only complaints to the FTC are included.

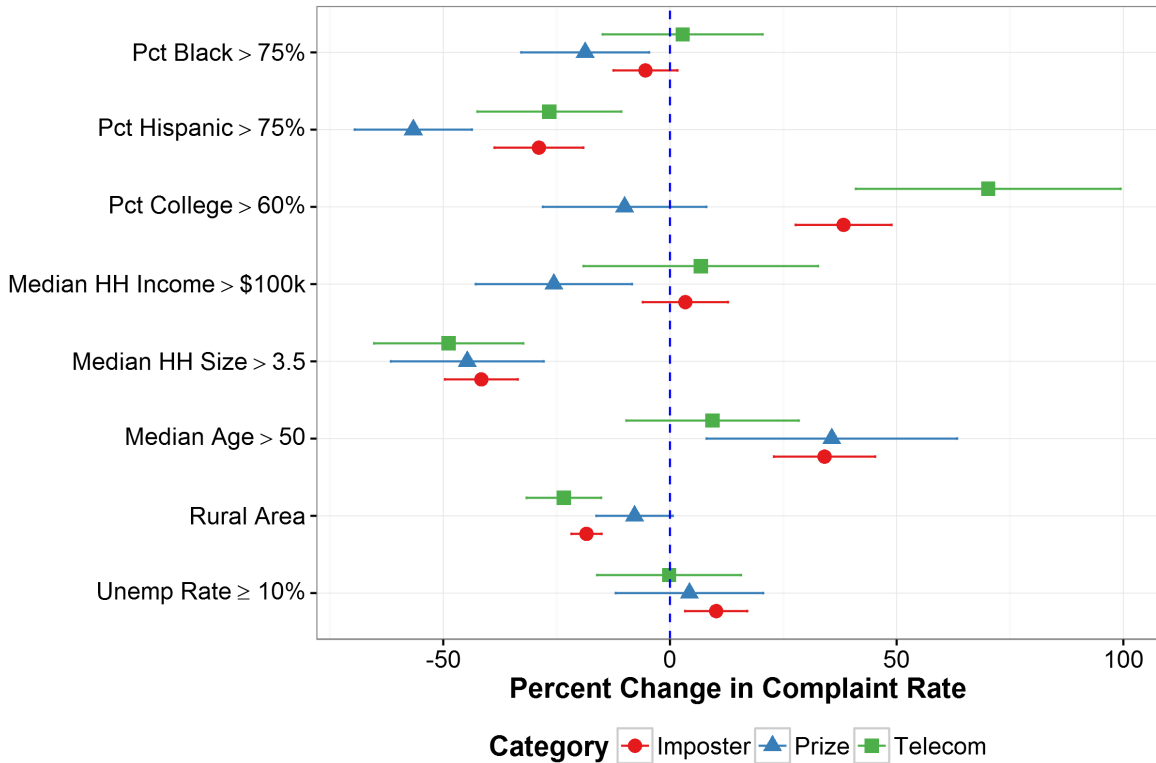


Figure 12 Percent Change in Per Capita Complaint Rate by Demographic Factors by Complaint Type for Non-Finance Related Complaints, FTC Only Complaints

Note: The graph depicts the percent change in the per capita complaint rate for different demographic factors based on estimates of equation (1); estimates for Imposter complaints are red circles, for Prize related complaints blue triangles, and for Telecom complaints green squares. The blue, dashed vertical line indicates a value of zero, so the proportion of complaining consumers in the category is the same as the proportion of population, after controlling for all other variables, relative to the baseline, omitted group. The percent change is relative to an omitted group; the baseline, omitted category is 0-5% for percentage black, 0-5% for percentage Hispanic, 0-10% for percent college educated, less than 30,000 dollars for median household income, less than 2 people for median household size, less than 3% for the unemployment rate, less than 30 for median age, and Metropolitan Area for area density. Only complaints to the FTC are included.

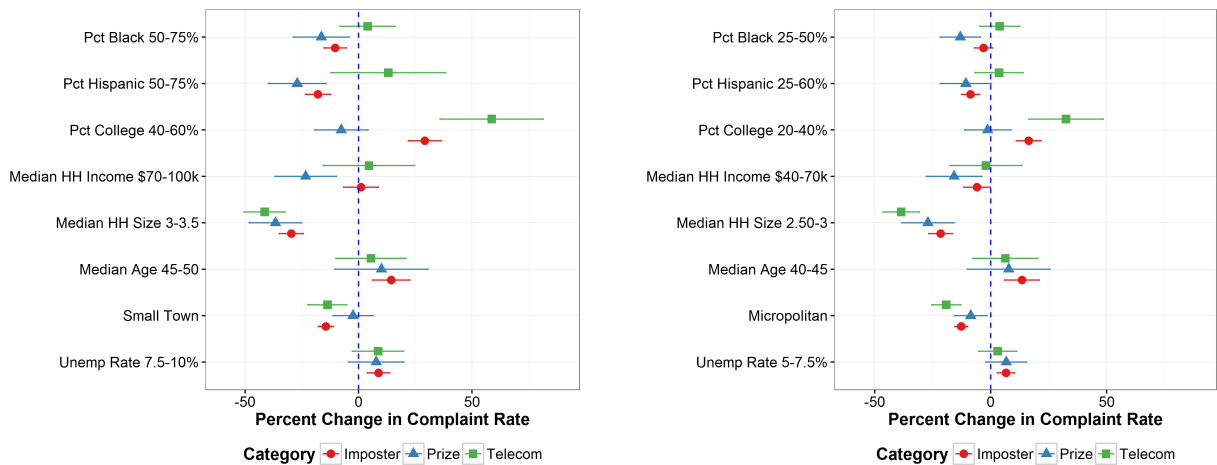


Figure 13 Percent Change in Per Capita Complaint Rate by Demographic Factors by Complaint Type for Non-Finance Related Complaints, FTC Only Complaints: Additional Categories

Note: The graph depicts the percent change in the per capita complaint rate for different demographic factors based on estimates of equation (1); estimates for Imposter complaints are red circles, for Prize related complaints blue triangles, and for Telecom complaints green squares. The blue, dashed vertical line indicates a value of zero, so the proportion of complaining consumers in the category is the same as the proportion of population, after controlling for all other variables, relative to the baseline, omitted group. The percent change is relative to an omitted group; the baseline, omitted category is 0-5% for percentage black, 0-5% for percentage Hispanic, 0-10% for percent college educated, less than 30,000 dollars for median household income, less than 2 people for median household size, less than 3% for the unemployment rate, less than 30 for median age, and Metropolitan Area for area density. Only complaints to the FTC are included.

Table A-1 Quantiles of Demographic Variables

Variable	Quantiles								
	1%	5%	10%	25%	50%	75%	90%	95%	99%
Percent Black	0	0.1	0.4	1.4	4.7	14.5	34.9	54.6	87.6
Percent Hispanic	0	0.7	1.3	3	7.7	20.8	46.9	65.3	90.8
Percent Asian	0	0	0.1	0.6	2	5.2	12	19.1	43.7
Median Age	23.5	28.3	30.2	33.7	37.5	41.2	44.6	47.1	54.8
Household Size	1.8	2.1	2.2	2.4	2.6	2.9	3.2	3.5	4.1
Unemployment Rate	1.5	2.7	3.3	4.3	5.6	7.3	9.2	10.5	13.3
Urbanization (RUCA) Score	1	1	1	1	1	2	4.1	7.1	10.2
Median Household Income (thousands)	23	29	33	41	52	68	88	101	130
Percent College Educated	5.1	8.6	10.9	15.8	24.1	37.4	52.4	61.2	75.5

Note: The 1st, 5th, 10th, 25th, 50th, 75th, 90th, 95th, and 99th percentile quantiles of each variable across zip codes are included in the table, where the quantiles are estimated after weighting each zipcode by its 2010 population.