Who Gets a Streetlight? Race, Class, and Responsiveness in U.S. Cities*

Brian T. Hamel† Derek E. Holliday‡

July 20, 2019

Abstract

Are cities more responsive to the needs of whites and the affluent than the needs of non-whites and the poor? We build the most comprehensive dataset of service requests to date – 25 million citizen requests to fix a pothole, repair a broken streetlight, pick up a missed trash collection, etc., from 15 of the largest 25 cities in the U.S. – and find that a significant amount of variation in responsiveness is explained by kind of service being requested, and not *who* is requesting it. Where we find differences in responsiveness, the differences are small in magnitude, and directionally inconsistent. We conclude that, on average, cities tend to respond to service requests from all its citizens with the same relative urgency. Our paper extends previous work on bias in government, and offers the most extensive empirical test to date of how cities respond to a range of service requests.

Word Count: 8,786

*We thank Justin de Benedictis-Kessner, Miriam Golden, John Holbein, Jan Leighley, Jeff Lewis, Tara Slough, Chris Tausanovitch, Lynn Vavreck, and conference participants at MPSA 2019 for helpful comments and conversations. Hamel thanks the National Science Foundation Graduate Research Fellowship program for support.

†Ph.D. Student, Department of Political Science, University of California, Los Angeles, 4289 Bunche Hall, Los Angeles, CA 90095-1472 (bhamel@ucla.edu)

‡Ph.D. Student, Department of Political Science, University of California, Los Angeles, 4289 Bunche Hall, Los Angeles, CA 90095-1472 (dehollidday@ucla.edu)

At the core of representation in democratic government is the expectation that government is responsive to the preferences and needs of the people it represents. That is, public policy is expected to move in the ideological direction of public preferences. Most political science research suggests that government is indeed responsive: there is a strong association between public opinion and policy, as liberal (conservative) states or cities tend to enact liberal (conservative) policies (e.g., Caughey and Warshaw 2018; Erikson, Wright, and McIver 1993; Lax and Phillips 2012; Tausanovitch and Warshaw 2014). Other work, however, suggests bias in policy responsiveness, as government appears to prioritize the preferences and needs of some over others. Bartels (2008) and Gilens (2012), for example, show that both the ideological orientation of lawmakers and the direction of particular policies follow the preferences of the affluent, especially when their preferences diverge from the preferences of low-income earners (but see Bhatti and Erikson 2011; Tausanovitch 2016). Whites appear to receive better representation than non-whites, too, as both federal and local policy tends to track the aggregate-level preferences of whites more so than non-whites (Griffin and Newman 2008; Schaffner, Rhodes, and La Raja 2016).

Another body of work focuses on how responsive government is to requests for service and information. Constituent service is an important component of government work (Cain, Ferejohn, and Fiorina 1987; King 1991). Harden (2016) and Tucker (2018) both show that people see constituent service as a significant factor affecting their vote choice. More specifically, Tucker (2018) reports that three-fourths of Americans see "keeping in touch with constituents" as very important to their vote choice. In contrast, only 57% see "working on national issues" as similarly important. Legislators appear to respond to these demands, too, as they often prioritize service over policy (Butler, Karpowitz, and Pope 2012; Parker and Goodman 2009). But here too, we see bias in responsiveness. Work at the state and local level uses audit experiments to show that legislators and bureaucrats are more responsive to requests for information about registering to vote, legislative internships, and public housing application processes from whites than they are to the same requests from non-whites

(Butler and Broockman 2011; Einstein and Glick 2017; Lajevardi 2018; White, Nathan, and Faller 2015). In a meta-analysis of audit studies in the U.S. and abroad, Costa (2017) finds that minority constituents are about 10 percentage points less likely to receive a response than a non-minority constituent. In short, across both policy and service, government is responsive, but not equally responsive.

While valuable, audit experimental research on responsiveness to service requests have been limited thus far to requests for one kind of information – information about how to register to vote, for example. As a result, these works cannot speak to whether there is larger mobilization of bureaucratic resources on behalf of whites, or the affluent, relative to non-whites and the less affluent. That is, we do not know whether government tends to prioritize whites over non-whites, and the affluent over the non-affluent, across a wide range of services. And without examining responsiveness to the full range of services that government offers, we do not know whether the patterns uncovered in particular audit experimental studies reflect only the use of taste-based discretion by individual legislators and bureaucrats, or whether it reflects institutionalized biases in how government handles citizen requests.

We offer a second look at whether government is more responsive to service requests from whites than non-whites and the affluent than the less affluent, and in doing so, address both of these limitations. Our approach considers a range of services commonly requested by citizens – requests to fix a pothole, repair a broken streetlight, pick up a missed trash collection or dead animal, clear street debris, respond to a nuisance, and the like – allowing us to discern how well government responds to requests from particular citizens on average. And by examining a variety of services across government divisions and agencies, we can ascertain whether we see institutionalized bias in government. To do so, we examine almost 25 million 311 service requests in 15 of the largest 25 cities in the U.S. between 2008 and 2018. Our dataset is the most comprehensive collection of service requests collected to date, and includes information about the kind of request, the request location, the date it was made, and the date it was closed by the city. We merge our request log with block group-

level demographic and economic information from the American Community Survey, and assess whether government responds to requests from more white or affluent neighborhoods *faster* than requests from more non-white or less affluent areas.

We find limited evidence of bias in responsiveness. Instead, our models show that a significant amount of variation – almost 45% – in responsiveness can be explained by the kinds of requests being made, and the city those requests are made in. We take this as evidence that whether government responds quickly or not-so quickly to a request is a function of how easy it is for them to fix a problem. It is much less a function of who makes a request, or the personal biases of the government actors involved. Where we do find differences in responsiveness, the differences are small in magnitude, and directionally inconsistent. First, we find some evidence that government responds faster to service requests from neighborhoods with fewer whites and to requests from less affluent neighborhoods – suggestive of a bias toward both non-white and less affluent neighborhoods. But the differences are small. We show show that for each 1 percentage point increase in percent white, wait time increases by 0.07%. We see a similar change in effect size for income. Here, for each 1% increase in per capita income, wait time increases by about 0.04%.

We also find some evidence of a pro-white and pro-rich bias. In some cities, government appears more likely to respond "on time" to requests from more white neighborhoods and affluent neighborhoods, relative to less white and less affluent neighborhoods, and that government tends to respond faster to more white and affluent neighborhoods as the number of complaints about a particular issue increases. In short, government responds faster in more white and affluent areas as the volume of calls increases. The magnitude of these effects are, again, small. In sum, we find limited and inconsistent evidence of bias in service provisions across models, and outcomes of interest. Our confidence in these findings is enhanced by our research design, which leverages only within-city and within-service variation to estimate the effect of race and income on responsiveness. That is, our design allows us to discern whether government responds differentially to the *same* kind of service request from a whiter or richer

neighborhood, relative to a more non-white or poorer neighborhood. It holds constant the time invariant factors that make some cities more responsive to complaints and, within-cities, faster to fix certain issues.

Our work makes several contributions. We introduce the most comprehensive dataset of service requests to date, allowing us to paint a picture of responsiveness averaged over time and in 15 different cities. Moreover, our study differs from previous work in that allows us to examine how government responds to actual requests for service, rather than researcher-supplied requests for information or assistance. What is more, our examination of a range of service requests – from requests to repair a broken streetlight to requests to pick up a missed trash collection – allows us to estimate the degree to which differences in responsiveness are truly attributable to who requests services, and how much is attributable to the request itself. Substantively, our work offers an important counterpoint to some recent research suggesting that government is more responsiveness to service requests from whites than non-whites. Instead, we conclude that, on average, there does not appear to be a significant difference in responsiveness across racial and income groups.

1 Theoretical and Empirical Perspectives

To date, most scholarship on responsiveness has focused on whether mass policy preferences align with government policy, and whether policy primarily reflects the preferences of particular subgroups (e.g., Caughey and Warshaw 2018; Erikson, Wright, and McIver 1993; Gilens 2012; Griffin and Newman 2008; Tausanovitch and Warshaw 2014). But legislators and bureaucrats alike are also responsible for providing services – be it providing information about federal government resources, assisting with a grant or program application, or writing to commemorate or recognize constituent achievements. Congressional scholarship sees constituent service as an important component of legislator's "home style" (Cain, Ferejohn, and Fiorina 1987; Fenno 1978; King 1991). In fact, legislators may even prioritize service

over policy (e.g., Butler, Karpowitz, and Pope 2012), responding to citizen requests for information at higher rates than communications asking about the legislator's policy preferences. There is some evidence at the local level to suggest that service matters to voters, too. For instance, Burnett and Kogan (2017) show that as the number of pothole complaints made increases, incumbent vote share decreases. These findings suggest that attention (or lack of it) to service provision can influence election outcomes (see also Christensen and Ejdemyr 2018), and are consistent with public opinion data showing that citizens tend to put tremendous weight on service (Harden 2016; Tucker 2018).

At the local level, service is particularly relevant. Local government is responsible for picking up garbage, fixing streetlights, and repairing roads. These "public works" often represent a significant portion of city budgets, and are essential to the upkeep of a city. A new line of work in political science examines whether legislators and bureaucrats are more responsiveness to service requests from non-whites, the affluent, and LGBT Americans. These studies all take inspiration from several prominent experimental works in economics and public administration that seek to measure whether people face discrimination as consumers and in the labor and housing markets (e.g., Ayres and Siegelman 1995; Bertrand and Mullainathan 2004; Pager, Western, and Bonikowski 2009). The design calls for contacting government officials, randomizing the personal characteristics – race, socioeconomic status, sexual identity, etc. – of the sender, and measuring responsiveness as whether the sender received a response, or not. The first set of studies focuses on elected officials. Butler and Broockman (2011) contacted U.S. state legislators about registering to vote, finding legislators were about 5 percentage points more likely to respond to requests from a white alias than to requests sent from a black alias. Mendez and Grose (2018) finds similar evidence of bias against Latinos asking state legislators about voter identification laws, especially when the legislator supports voter identification laws. Finally, Lajevardi (2018) find similar evidence against Muslim Americans interesting in legislative internships. Only one audit study considers social class – as measured through occupation – but finds no evidence that state

legislators are biased in handling casework requests from constituents of different economic status' (Carnes and Holbein 2019).

Other research focuses on bureaucrats. White, Nathan, and Faller (2015) contact local election officials, and find that they are less likely to respond or provide a quality response, to Latinos asking for information about voter identification laws, relative to non-Latinos. Einstein and Glick (2017) finds no difference in responsiveness to requests for aid in a housing application between whites and blacks, but some evidence of discrimination against Hispanics. Their work also suggests that bureaucrats are more helpful and friendlier to Hispanic constituents in high minority areas, suggesting that some of the racial bias in responsiveness may be attributable to exposure to and contact with minorities (or a lack thereof) in particular communities. Lowande and Proctor (n.d.) report null effects for LGBT Americans, finding that marriage-license granting officials are not more or less responsive to requests for information about obtaining a marriage license from unwed heterosexual couples, relative to the same request from unwed homosexual couples.

Overall, these works suggest that government is biased, and that the bias reflects taste-based discrimination on the part of individual bureaucrats. Basic requests for information from white constituents are responded to faster than the same kind of requests from a non-white constituent. We offer a second look, expanding the analysis beyond requests for basic information about voting, housing application processes, or marriage licenses. Instead, we examine a wide variety of services that citizens request of government every day, and look for evidence of bias in responsiveness. More specifically, we study how government responds to reports of specific neighborhood issues – requests to fix a pothole, repair a broken streetlight, pick up a missed trash collection or dead animal, clear street debris, respond to a nuisance, and the like. To do so, we collect the largest and most comprehensive dataset of 311 service requests from 15 of the largest 25 cities in the U.S. Our dataset spans a ten-year period, and includes nearly 25 million requests for services. We combine these data with contextual demographic information and assess whether whiter and more affluent neighborhoods are

better represented than less white and poorer neighborhoods. Our approach allows for a more complete picture of bias in service provision. In particular, because our study tracks responsiveness across multiple service areas, we are able to discern how much of the variation in responsiveness can be attributed to the service requests themselves, and how much can be explained by the demographic and economic characteristics of those making the requests. In the end, we can offer a benchmark for whether the patterns of bias uncovered in audit experimental work reflects individual-level bureaucratic discretion in particular agencies or levels of government, or institutionalized bias across all facets of government.

To be clear, our approach differs from that of past work in two important ways. Namely, we do not ask whether government ignores the service requests of non-whites and the less affluent at higher rates than requests from whites and the affluent. That is, our main outcome of interest – as will be clear below – is not a binary measure of responsiveness, as in the audit experimental studies. Rather, we consider whether governments tend to the needs of whites and the more affluent *faster* than they do to those of the non-whites and the less affluent. We see this as the right way to understand responsiveness in this context. Cities close most all valid requests at some point; what is interesting, then, is to explore variation in the time to completion. Second, we consider the influence of contextual income on the responsiveness of government. We look at how government responds (or does not respond) to service requests on the basis of the neighborhood from which the request is made. We are therefore not looking at whether requests made by a white or wealthy person are more likely to receive a fast response. Below we describe the 311 system, the data, and our empirical approach to measuring and evaluating responsiveness.

2 Data

311 is a government-sponsored phone number that provides access to non-emergency municipal services. In short, 311 is the equivalent of 911, but for non-emergencies. It offers people

an easy way to communicate with their local government about issues in their community, like potholes, graffiti, or a broken streetlight or traffic signal. 311 makes citizens the "eyes and ears" of the city, enabling local government to devote resources to fixing, rather than searching for, issues. Examples of 311 calls made include the following (text lightly edited by the authors for clarity and grammar):

> "Some business keeps dumping boxes and boxes of empty butane canisters in our road. Please help?" – Detroit, 3/28/2018
>
> "Streetlight is hanging by one wire over the road. Looks like it will fall at any moment." – Detroit, 5/13/2018
>
> "HUGE pothole on the freeway entrance ramp. This hole is very dangerous to motorcycles entering the freeway. Someone is going to get hurt if they hit it." – San Diego, 1/2/2017
>
> "Trash collection was missed last Friday and yesterday. Trash cans are full, and trash is overflowing in the whole alley. Please pick up ASAP." – Washington, DC, 1/14/2015

To report an issue, citizens may call 311 directly, and in some cities, report the issue online or use a smartphone application, allowing people to file complaints 24 hours a day, seven days a week. Often callers have the option to include a photo of the problem along with their written request (e.g., Boston and San Francisco). After filing the complaint, the request can be tracked, and an estimated time to completion is often provided. Calls generally begin in a central command center, where city employees either provide the requested information to the caller or route the call to the appropriate agency or department (i.e., the Department of Public Works for street repairs). From here, city workers are assigned to investigate the report and (if needed) and fix the issue.

In most cities, 311 request logs are publicly available. These data usually contain information about the kind of request, the location of the request, as well as the date the request was made and the date it was closed by the city. We began with the top 25 cities by pop-

ulation (as of 2017), and collected all 311 request logs – dating back as far as possible, and up to the end of 2018, if available – that include each of the aforementioned elements. Of the top 25 cities, 15 cities met these requirements. In order by population, these are: New York, Los Angeles, Chicago, Houston, Philadelphia, San Diego, Dallas, Austin, Jacksonville, San Francisco, Denver, Washington, Boston, Detroit, and Nashville.[1]

Cities receive calls about hundreds of different kinds of issues, with some much more common than others. Indeed, Austin's 311 call log includes 147 unique kinds of services. San Francisco's includes 101, some of which only received a handful of calls. One challenge, then, is in choosing which kinds of calls to examine and to assess responsiveness. We considered two options. The first was to generate a broad list of service requests that we anticipated would be made in each city (such as broken streetlights), work through the list of requests actually made in each city, and categorize as many as possible into our broad categories. Such an approach has the nice feature of maintaining consistency across cities, allowing us to examine how each city varies in its responsiveness to the same kind of requests. A downside to this approach, though, is that we may lose a significant amount of within-city variation in the kinds of requests made and the frequency with which they are made. In looking at the data, we found the most common requests were not always the same across cities. For example, in Dallas, complaints about tall grass and weeds are quite common. But, in no other city do we see these kinds of requests at a similar rate. Likewise, only in New York are calls about heat and hot water issues and plumbing common. To be sure, we do see a lot of similarity: missed trash and recycling collection, issues with traffic signs and signals, graffiti, and potholes are frequently reported in nearly every city. Nevertheless, we opt to maintain the variation across cities and select for analysis only the top 10 service areas – or as many service areas as are in the data up to 10 – within each city, and across the entire time period. To do so, we first collapsed similar service areas – e.g., we combine

[1]Indianapolis and Seattle do not currently have 311. Phoenix, San Antonio, Columbus, El Paso, and Memphis have 311, but their call logs do not include latitude and longitude. Finally, city officials in San Jose did not respond to our FOIA requests, while data from Fort Worth are not freely available to the public.

requests for trash collection and requests for recycling collection – such that, within each city, the top 10 reflects the top 10 unique categories of services.

Table 1: **Summary of Requests by City**

City	First Request	Last Request	# of Requests	# of Requests (Top 10)	% Top 10
New York, NY	01/01/2010	12/31/2018	17,655,254	8,644,127	48.96
Los Angeles, CA	08/05/2015	12/31/2018	3,083,707	2,784,236	90.29
Chicago, IL	02/11/2008	12/31/2018	4,231,886	4,231,886	100.00
Houston, TX	11/07/2011	12/31/2018	2,161,509	1,313,892	60.79
Philadelphia, PA	12/08/2014	12/31/2018	791,334	558,533	70.58
San Diego, CA	05/20/2016	12/31/2018	370,888	274,598	74.04
Dallas, TX	10/01/2016	09/27/2018	733,833	284,691	38.80
Austin, TX	12/31/2013	12/31/2018	622,294	395,950	63.63
Jacksonville, FL	01/01/2012	12/30/2016	1,195,220	718,006	60.07
San Francisco, CA	07/01/2008	12/31/2018	2,969,713	2,407,340	81.06
Denver, CO	01/01/2008	12/31/2014	1,054,924	698,240	66.19
Washington, DC	01/01/2012	12/31/2018	2,037,846	1,483,042	72.77
Boston, MA	07/01/2011	12/31/2018	1,417,930	1,161,932	81.95
Detroit, MI	07/21/2014	12/31/2018	156,810	137,799	87.88
Nashville, TN	07/17/2017	12/31/2018	76,896	60,705	78.94
			38,560,044	**25,154,977**	**65.24**

Table 1 summarizes the 311 data for each city.[2] It gives the date range of our data, the total number of requests made, the total number of requests made in the top 10 categories as we define them, and the share of calls that were made in the top 10 service areas. In total, our dataset includes 38.5 million service requests. Over 25 million of these – about 65% – are in the top 10, and are included in our analyses. City-by-city, we see that our sampling strategy picks up most of the calls. In 13 of 15 cities, our analysis includes more than 60% of all calls. In 8 of 15 cities, it includes more than 70% of all requests made. While our analysis cannot speak to how cities respond to *every* kind of service request made, our analysis will speak to how cities respond to the most pressing challenges that their community faces, and the issues that citizens appear most concerned about. Most critically, our approach allows us to estimate the effect of race and income on responsiveness on average, and to explore whether responsiveness is more a function of those contextual demographics and economics or the kind of request itself.

[2]Table A1 replicates this table, but summarizes the data by service (including only the top 10 service areas) within each city.

We create two measures of responsiveness. Our primary measure – *wait time* – is simply the number of days between the date the service was requested, and the date that the service requested was closed by the city. Larger values indicate that the city took more time to fulfill the request. We log-transform this variable. The measure makes a key assumption: that the government closes each request when the service is completed, and not in batches at the end of the week, for example. In short, we assume that the closure dates given in the data are precise at least to the day.

We have no reason to suspect that the governments do not record accurate information. First, governments tend to use 311 data as a performance metric, one of many ways to determine how to best allocate resources. Closing requests in batches – perhaps days or even weeks after the requested service was completed – would give the government imprecise information and almost no insight into actual performance. Figure A1 looks for clustering in the data within each city. We simply counted the number of requests closed on each day of the week within each city. If the closing dates given in the data do not genuinely reflect when services are completed, but instead reflect the internal process that a city uses to "clear their deck," then we may expect to see that calls tend to be closed on only one or two days of the week. We find no evidence of this. Instead, calls seem to closed throughout the work week, suggesting that cities at least do not tend to close all completed requests from the week on, for example, Friday. Our second measure captures whether the city was late in closing the request. In six cities – Boston, Dallas, Houston, New York, Philadelphia, and Washington, DC – and for some kinds of services, the city assigns and publicly discloses a due date for each given complaint. The due date represents the date the city expects to close the request by. We create a dummy variable indicating whether the city was "overdue" in closing the request. We use this measure – *overdue* – as a secondary measure of responsiveness.

Note that each observation in the 311 data reflects one unique call. Observations may be duplicated in the data if more than one person called to report the same issue, and we suspect this happens quite often. Indeed, it is surely not the case that only one person will

see a broken traffic light in a busy intersection. We first created a dummy variable if the request shared a open date, close date, latitude, longitude, and service area with another request in the data. A second measure captures not just duplication, but the volume of calls made about the same issue. Here, we simply count the number of times requests with the same open date, close date, latitude, longitude, and service area appear in the data. Both of these measures assume that there is limited measurement error in the latitudes and longitudes recorded in the data, and that the values recorded are consistent to several digits if those calls emanate from the same location.

Using the latitude and longitude provided, we merge the data with information from the American Community Survey (ACS).[3] The ACS is the largest household survey administered by the U.S. Census Bureau, sent to approximately 295,000 addresses monthly and 3.5 million per year. It is now the primary source for economic and demographic information at several levels of geography. We merge the 311 data to block-group level estimates of per capita income and percent non-Hispanic white. We merge requests made between 2008 and 2012 with the 2012 ACS – reflecting estimates of income and race averaged across conducted from 2008-2012 – and requests made from 2013 and later with the 2017 ACS (estimates from ACS data from 2013 to 2017).

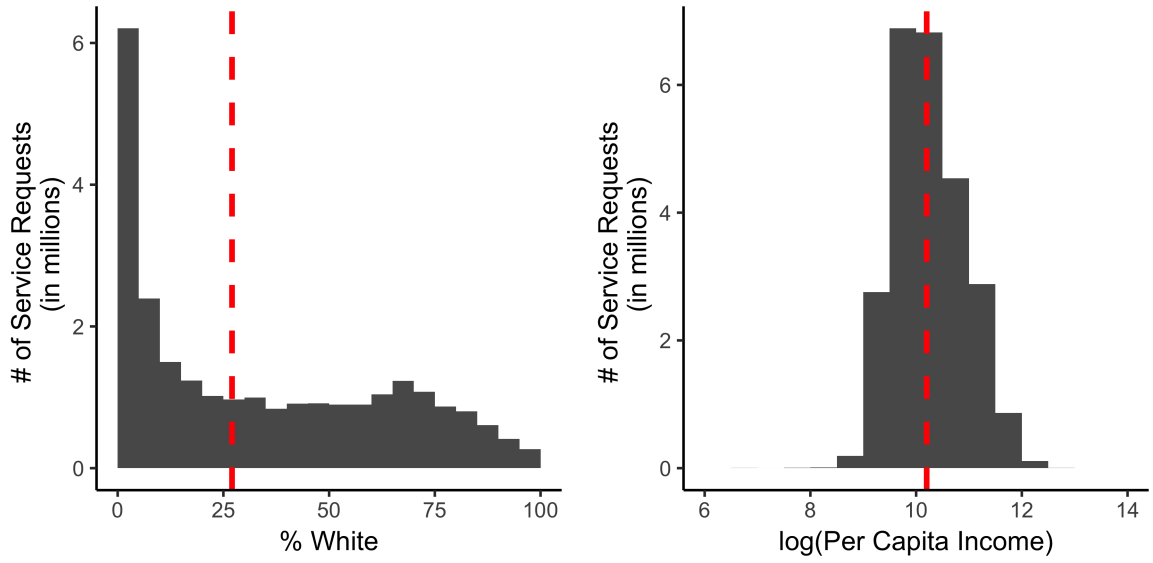
In sum, our dataset includes a sample of services requests – the most common in each city – from 15 of the 25 largest cities in the U.S. over a ten-year time period. We have created measures of responsiveness that capture how long it takes cities to respond to and close a particular request, and in some cities, whether the city is late in doing so. That is, we have created measures that represent how long it takes a city to fix a pothole, for example. We merged these data with information on the demographic characteristics of the neighborhood from which each service request was made. Combined, these data allow us to quantify the extent to which cities are more responsive to service requests from wealthier and whiter neighborhoods.

[3]Note that we exclude observations where the latitude and longitude given in the data do not fit within the bounding box of the city.

2.1 Who Calls 311 – and Why?

Before proceeding, we first describe the 311 data. Aggregated across cities, do 311 calls tend to originate from wealthier or whiter neighborhoods, and do wealthier or whiter neighborhoods request different kinds of services than do less affluent or less white areas? Figure 1 shows the distribution of service requests – across all cities and service areas – by percent white (panel A) and per capita income (panel B).[4]The dashed red line in both indicates the median percent white and the median per capita income in the data. We find that most calls originate from neighborhoods with more non-white residents. Indeed, the largest "spike" in the data is around 0% white. But outside of these 100%, or near-100%, non-white neighborhoods, we see a relative similarity in the number of calls made. Neighborhoods where 25% of residents are white look similar in their use of 311 to areas that are 75% white. We observe even less difference in 311 use by income. In the aggregate, 311 use is relatively evenly distributed across income, with those just below the median per capita income (about $29,000) tending to use 311 slightly more often.

Figure 1: # **of Requests by Race and Income**



[4]Figure A2 replicates Figure 1 for requests outside of the top 10. We find that these calls are distributed across the race and income distribution similarly to calls from the top 10.

We further parse our data and examine how the propensity to use 311 varies by race and income within cities and services. Figure 2 presents the distribution of requests within city and service by race, and Figure 3 does the same for income. These are presented as box plots, showing the distribution of individual service requests at various levels of percent white and per capita income with outliers (values above our below 1.5 times the interquartile range) indicated. Focusing first on race, we begin to see some important differences between and within cities. First, the relationship between race and requests varies by city. For example, calls from Dallas and Detroit tend to come from non-white areas. In contrast, calls from Nashville and San Francisco come from much more white areas. But more importantly, we also see that, within cities, predominantly white neighborhoods tend to request different kinds of services than do predominantly non-white neighborhoods. Consider Washington, DC. Requests for street cleaning are more likely to come from areas with fewer whites. In contrast, parking violation complaints are more likely to come from white neighborhoods. Similar differences appear throughout the data. These patterns are not particularly surprising, either. Areas with more street parking and parking meters tend to be of higher density and closer to business districts, where the incomes of residents tend to be higher. In short, white neighborhoods and non-white neighborhoods may both use 311, but they are often requesting fundamentally different services. We do not see the same kinds of disparities between different income levels. What is striking here is that low-income neighborhoods and high-income neighborhoods tend to request the same kinds of services. Of course, there is some variation. For example, in both Boston and San Francisco, requests related to housing tend to come from lower-income areas.

In sum, these descriptive statistics are suggestive of several important features of our study. First, requests for service come from white and non-white, and rich and poor, neighborhoods. Indeed, there is a striking amount of symmetry across in the volume of requests across the racial and income distribution. But neighborhoods do not appear equally likely to request the same kinds of services, particularly as you consider differences by race. What

this means is that differential responsiveness could theoretically reflect differences not in how government views and responds to particular requests, but simply differences in who requests what, and in whether government is able to respond to certain requests faster than others. Our research design, described below, accounts for these differences.

Figure 2: **Distribution of Requests by City, Service, and Race**

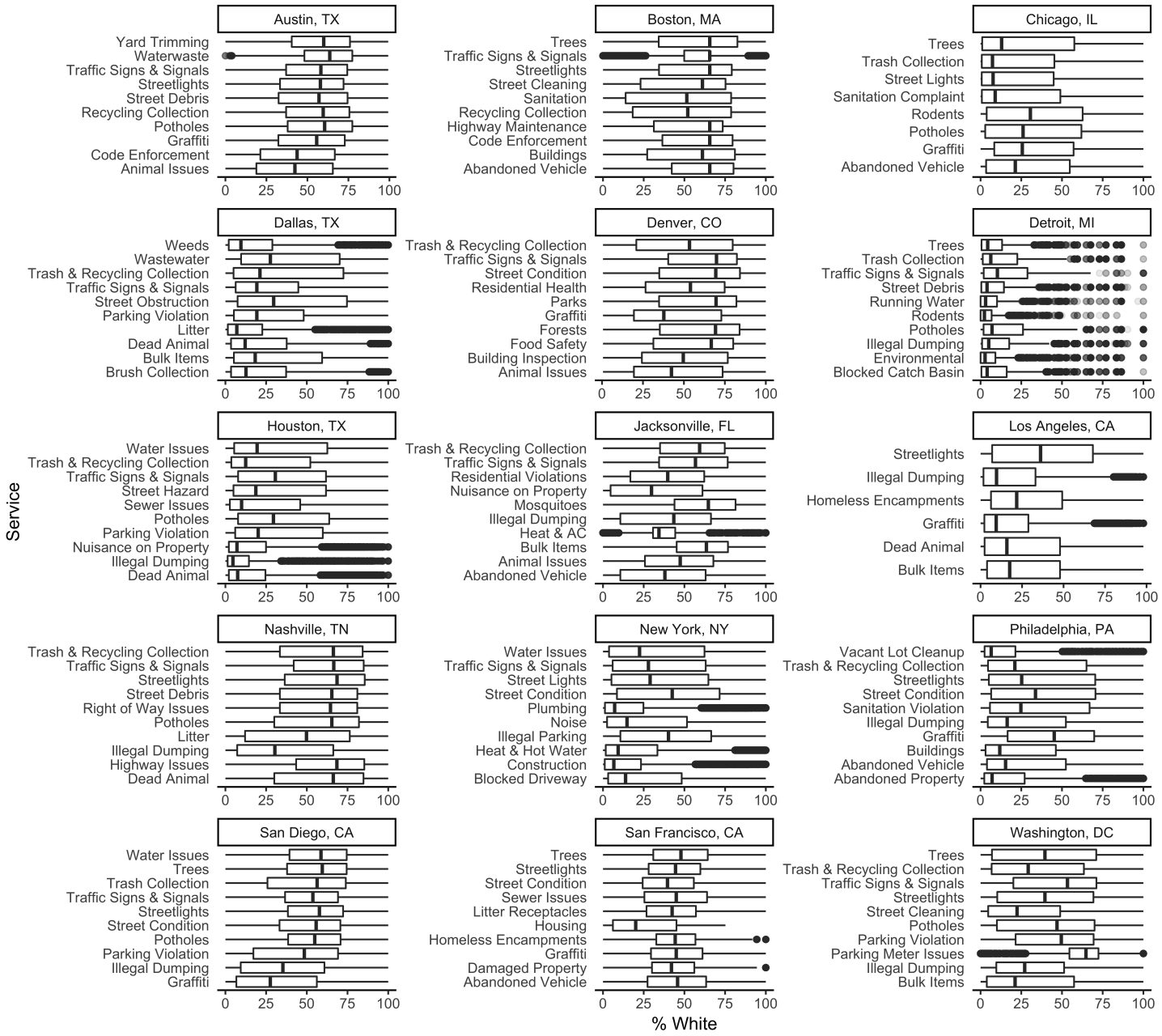
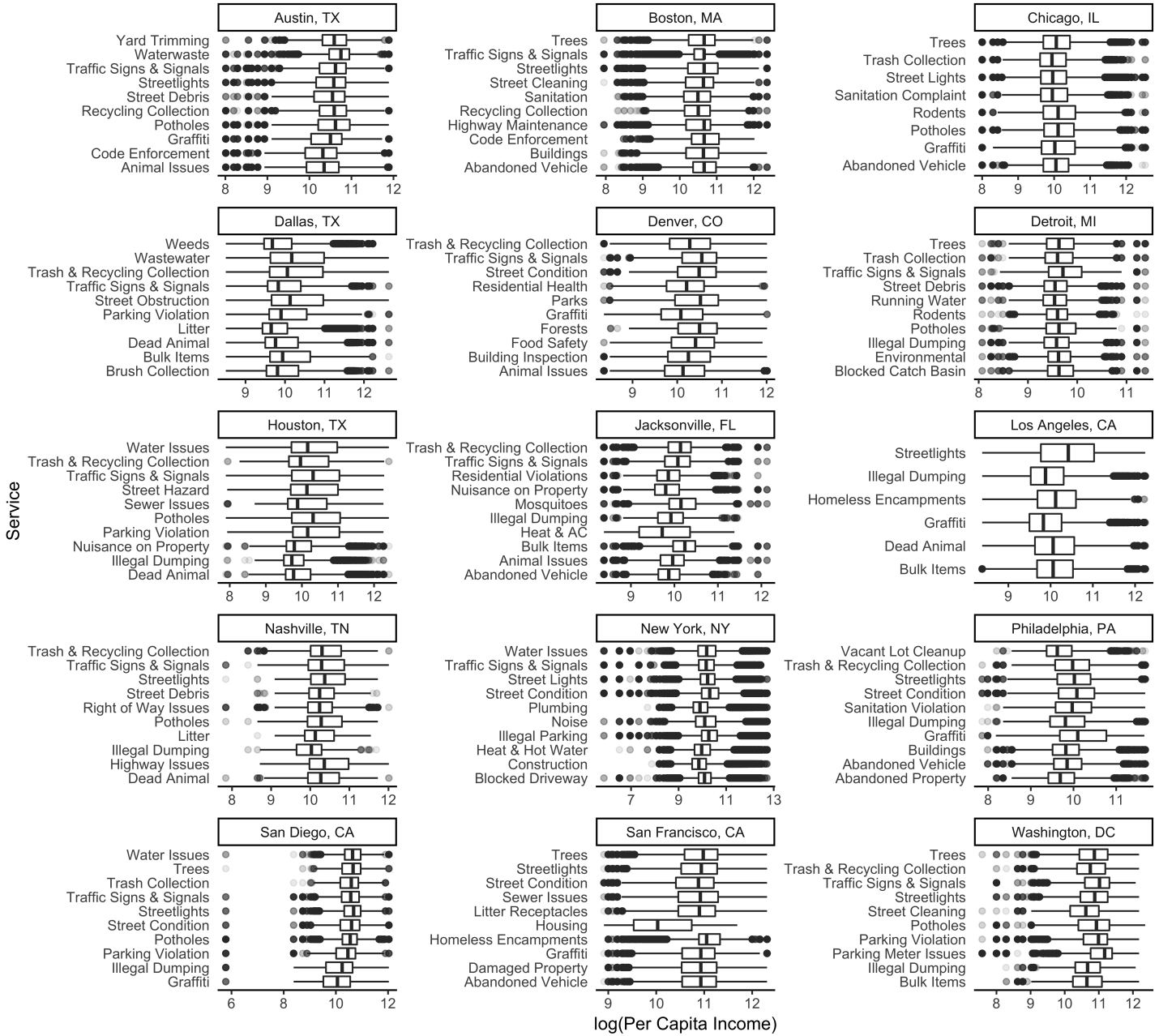


Figure 3: **Distribution of Requests by City, Service, and Income**



3 Design and Results

3.1 Naïve Estimates

Our goal is to show whether cities respond faster to service requests from white and affluent neighborhoods, relative to less white and less affluent neighborhoods. The most basic approach for doing so simply regresses our two dependent variables – wait time and overdue – on percent white and per capita income. The coefficients would tell us the extent to which, across cities, services, and time, government responds faster (or slower) to requests from more affluent areas, and areas with more white residents.

Table 2: **Race, Class, and Responsiveness – Naïve Estimates**

	log(Wait Time)		*Overdue*	
	(1)	(2)	(3)	(4)
% White	-0.0013^{***}		-0.0001	
	(0.0002)		(0.0000)	
log(Per Capita Income)		-0.1221^{***}		-0.0238^{***}
		(0.0070)		(0.0023)
Intercept	1.4963^{***}	2.7068^{***}	0.1415^{***}	0.3454^{***}
	(0.0069)	(0.0713)	(0.0022)	(0.0242)
Observations	24,579,644	24,565,1083	7,827,255	7,822.831
R^2	0.0007	0.0031	0.0000	0.0022

$^{***}p < 0.001$. Standard errors clustered by block group-ACS.

Table 2 shows these results. We find that, for each one percentage point increase in percent white, wait time decreases by 0.13%, suggesting that government is biased toward whites. These effects are also large in magnitude. At 50% white, the model predicts that wait time will decrease by about 7%. Similarly, for each 1% increase in per capita income, wait time decreases by 0.12%. Analyses using our secondary dependent variable – overdue – give similar substantive conclusions. Requests from wealthier neighborhoods are less likely to be overdue than requests from poorer neighborhoods. These coefficients confirm the findings of

previous work. Government bureaucrats respond to whites, and to the more affluent, faster than they do non-whites, and the poor.

But note the R^2 values associated with each model. These values give us a sense of model fit, describing how much variation in responsiveness is explained by variation in neighborhood income and race. The largest R^2 value is 0.003 (Column 2), suggesting that only about 0.3% of the observed variation in wait times can be explained by neighborhood income. We take these as signs of weak fit, and as motivation to explore what else – independent of neighborhood economics and demographics – can explain variation in responsiveness.

3.2 Within-City & Service Estimates

The naïve estimates do not take into account whether a particular city is more responsive than another on average, whether (within cites) particular kinds of services are easier to respond to than others, or whether cities are becoming more (less) responsive to requests over time. In short, those estimates may reflect between-unit variation, reflecting not biased bureaucrats but factors unrelated to neighborhood characteristics like race and income. First, there is surely reason to think that some issues are simply easier to fix than others. Responding to a noise complaint or even cleaning debris from a sidewalk likely requires fewer city resources (staff, money, etc.) than a broken streetlight or an overgrown tree. Moreover, cities are not created equal. Cities with greater resources and professional staff may actually be able to respond to a broken streetlight just as fast as a noise complaint.

Figure 4: **Mean log(Wait Time) by City and Service**

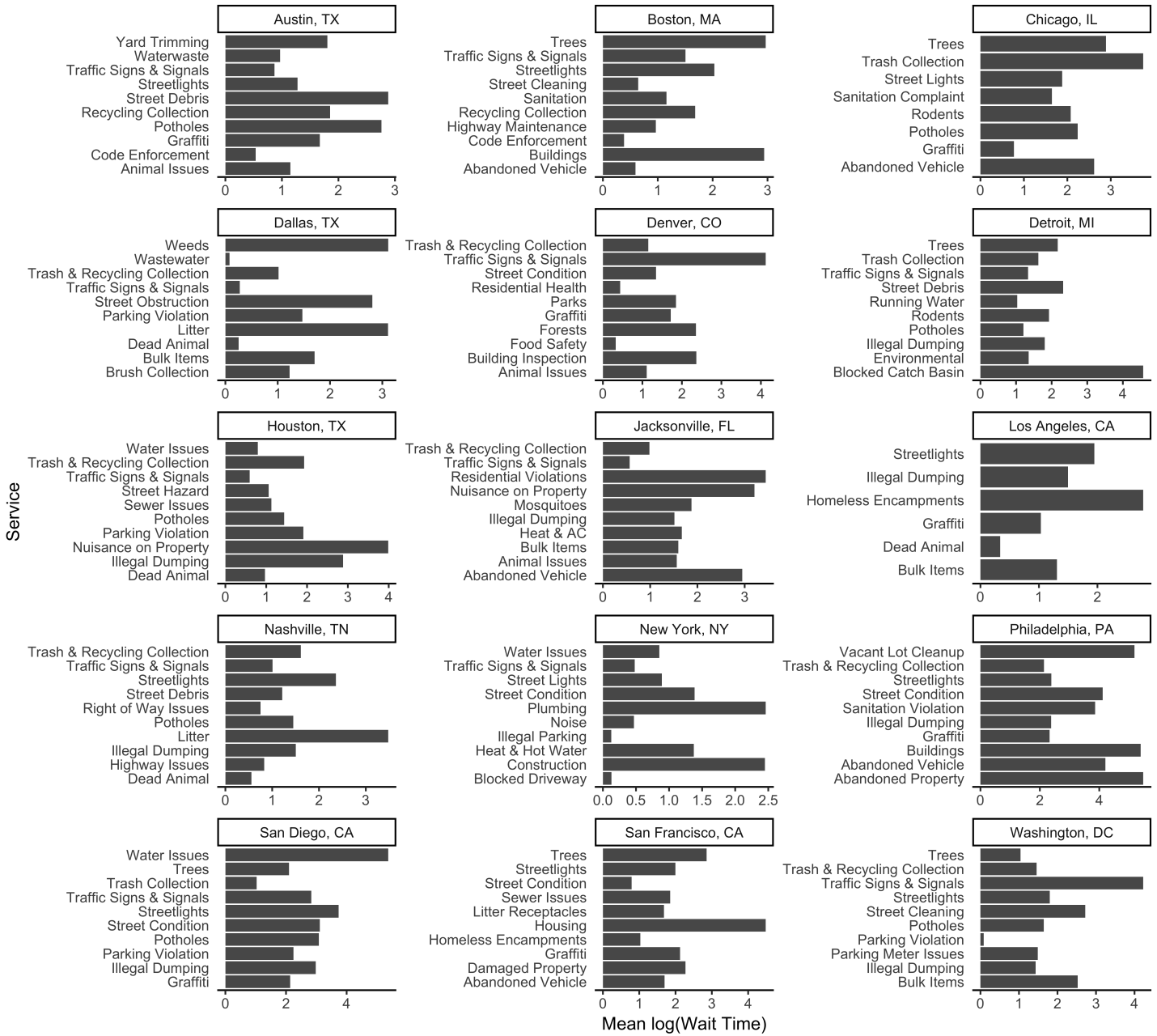


Figure 4 provides evidence of variation in responsiveness across cities and services. It simply plots the mean wait time (logged) for each city-service combination in the data. As is clear, responsiveness varies within cities. Consider, Boston. The city appears to respond to requests about street cleaning, code enforcement, and abandoned vehicles fairly quickly. Code enforcement issues, for example, are closed, on average, within less than two days. But overgrown trees and building requests tend to take longer: these take, on average, almost 20 days to close. We see these kinds of differences in each city. Houston responds quickly to downed traffic signs and signals, but takes much longer to close complaints about illegal dumping. There is also variation across cities, and within services: complaints about missed garbage pickup are responded to faster in Dallas than in Chicago, just as downed traffic signs and signals are handled faster in Nashville than in Washington, DC. All told, these descriptives suggest that a significant amount of variation in responsiveness may be accounted for not by the neighborhood making the request, but by the city the request was made in and by the kind of service requested.

We therefore reestimate the same linear models as before, but include fixed effects for each city-service in the data. With these fixed effects, we reduce variance in our independent variables to within-unit variation, such that we are able to compare responsiveness to requests from high-income neighborhoods to the *same* requests from the low-income neighborhoods. We also include month and year fixed effects. These fixed effects help account for seasonal variation in both calls and responsiveness, as well as year-to-year trends in responsiveness. In short, unlike the naïve estimates – which show a significant and substantively meaningful relationship between neighborhood race, income and responsiveness – these within-unit estimates hold constant both time invariant factors that make some cities more responsive to complaints and, within-cities, faster to fix certain issues, as well as a time-varying confounders that affect responsiveness generally.[5] In some models, we also in-

[5]We also ran separate models for each kind of service request within each city. These models are of course similar to our within-unit strategy in that they hold constant time-invariant confounders related to responsiveness for particular kinds of services, but they have the added benefit of allowing us to explore heterogeneity within cities but across services. Figure A3 presents the coefficients for percent white and per

clude the two variables capturing duplication and volume described above. These variables should soak up additional variation.

The results in Table 3 paint a much different picture of the effect of race and income on responsiveness. First, we now see a *positive* effect of percent white and per capita income on wait time, suggesting a pro-non-white and pro-poor bias in responsiveness. Contra extant work, cities – to the extent that they are biased in responding to service requests at all – tend to be more responsive to non-whites and the less affluent. Moreover, we see a dramatic decrease in the magnitude of the effects. Recall that our naïve estimates suggested that each 1 percentage point increase in percent white decreased wait time by 0.13%. Our within-unit estimates in Column 1 show that for each 1 percentage point increase in percent white, wait time increases by 0.07%. The effect size is cut in half. We see a similar change in effect size for income. Here, for each 1% increase in per capita income, wait time increases by about 0.04%. But we find the opposite effect for whether the request was overdue or not. Here, we find that requests from whiter and wealthier neighborhoods are less likely to be closed "late" (i.e., after their assigned due date). But these effects are also trivial in magnitude. For example, we find that each 1 percentage point increase in percent white decreases the probability of a request being overdue by only 0.02 percentage points.

What does account for variation in responsiveness? As we expected, the kinds of services requested, and the cities they are requested in, appear to explain a significant portion of variation in wait times. As before, note the R^2 values given for each model. We present the full R^2 and the projected R^2 value. The full R^2 value gives is a measure of fit with the fixed effects included, and the projected R^2 value gives the estimate of model fit without the fixed effects included (akin to the R^2 value given for our naïve models). We should always expect the full R^2 to be larger, as the fixed effects should account for differences between units and explain variation in the response. Our results suggest that our fixed effects – namely, our city-service fixed effects – explain more than 40% of the variation in wait times, and

capita income from each of these models. These models include no covariates, but include month and year fixed effects. Standard errors are clustered by block group-ACS year.

about 28% of the variation in whether a request is overdue or not. These findings lead us to conclude that local governments do not appear biased in favor of whites, non-whites, the rich, or the poor. Indeed, the effects we uncover are small, and directionally inconsistent across our two dependent variables. Instead, responsiveness to service requests seems to track well with the particulars of the request and the city it is being made in. The personal biases of government actors reported in previous studies does not seem to generalize to how government responds to actual service requests. Rather, government responds to citizen needs on the basis of the service being requested.

Table 3: **Race, Class, and Responsiveness – Within-City & Service Estimates**

	log(Wait Time)				*Overdue*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
% White	0.0007***	0.0006***			−0.0002***	−0.0002***		
	(0.0000)	(0.0000)			(0.0000)	(0.0000)		
log(Per Capita Income)			0.0360***	0.0340***			−0.0085***	−0.0085***
			(0.0029)	(0.0029)			(0.0009)	(0.0009)
Duplicate		−0.1838***		−0.1832***		−0.0302***		−0.0303***
		(0.0102)		(0.0102)		(0.0073)		(0.0074)
# Requests		−0.0018		−0.0018		0.0006		0.0006
		(0.0018)		(0.0018)		(0.0006)		(0.0006)
City-Service FEs	✓	✓	✓	✓	✓	✓	✓	✓
Month FEs	✓	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓	✓
Observations	24,579,644	24,579,644	24,565,083	24,565,083	7,827,255	7,827,255	7,822,831	7,822,831
R^2 (full)	0.4303	0.4323	0.4305	0.4324	0.2786	0.2794	0.2786	0.2795
R^2 (projected)	0.0003	0.0037	0.0004	0.0038	0.0003	0.0015	0.0003	0.0015

$^{***}p < 0.001$. Standard errors clustered by block group-ACS.

4 Can You Hear Me Now?

In this section, we assess whether the volume of calls moderates the effects we show above. More specifically, we assess whether what matters for responsiveness is not whether a specific request is made from a white (rich) or non-white (poor) neighborhood, but whether a specific request is made by *many* from a white (rich) or non-white (poor) neighborhood. In short, we assess whether when the "voice" of white (affluent) neighborhoods is louder, government responds faster. Existing literature would predict that as more people from a white neighborhood complain about a particular problem, responsiveness should increase.

Table 4 reestimates the same specifications as our within-city and service models, but adds an interaction term between percent white, per capita income, and the number of requests, respectively. We find a negative and statistically significant effect of percent white and per capita income on wait time, and on whether the request was overdue as the number of times the request was made increases. As the neighborhood becomes whiter or more affluent, the marginal effect of number of requests on decreasing wait time increases These findings confirm previous work in that it suggests that government responds to the "voice" of white neighborhoods and affluent neighborhoods. However, while difficult to interpret, the size of the coefficients on the interaction terms are small, suggesting that the additional differential responsiveness by race and income from each additional request made substantively negligible. The lack of a meaningful increase in model fit also casts doubt on the amount of variance in our data explained by these interactions.

Table 4: **Race, Class, and Responsiveness – Heterogeneity by Call Volume**

	log(Wait Time)		*Overdue*	
	(1)	(2)	(3)	(4)
% White	0.0010^{***}		-0.0001^{***}	
	(0.0001)		(0.0000)	
log(Per Capita Income)		0.0471^{***}		-0.0050^{***}
		(0.0045)		(0.0009)
# Requests	-0.0006	0.0754^{**}	0.0012^{***}	0.0255^{***}
	(0.0012)	(0.0252)	(0.0000)	(0.0033)
% White x # Requests	-0.003^{***}		-0.0001^{***}	
	(0.0000)		(0.0000)	
log(Per Capita Income) x # Requests		-0.0081^{**}		-0.0026^{***}
		(0.0026)		(0.0003)
City-Service FEs	✓	✓	✓	✓
Month FEs	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓
Observations	24,579,644	24,565,083	7,827,255	7,822.831
R^2 (full)	0.4309	0.4309	0.2792	0.2793
R^2 (projected)	0.0013	0.0011	0.0013	0.0012

$^{***}p < 0.001$. Standard errors clustered by block group-ACS.

5 Discussion and Conclusion

A large body of work considers whether government responds to the preferences and needs of citizens, and many of these works focus in particular on whether government prioritizes the needs of some over others (i.e., whether government is biased). Some recent work in this area looks at whether government officials are more responsive to requests for information and service from whites relative to non-whites (e.g., Butler and Broockman 2011; Einstein and Glick 2017; White, Nathan, and Faller 2015). Each paints a picture of a biased government catering to whites more so than non-whites. We argue that these works are limited, however, in that they are unable to empirically examine the full range of of services commonly requests by citizens. Our study offers a second look, bringing to bear the largest and most comprehensive dataset of service requests to date. We find that demographic and economic characteristics are not the most important predictor of responsiveness to citizen service requests. Rather, we find that the kind of service being requested explains a significant portion of variation in responsiveness. Where we do find differences, these differences are small in magnitude, and directionally inconsistent across models and measures of responsiveness. We conclude from our study that city governments do not tend to prioritize the needs of whites or the affluent – or non-whites or the poor. Instead, cities seem to respond to service requests in a rule-based fashion, reducing the use of discretion among individual bureaucrats and overall bias in responsiveness.

We do not suggest that there exists zero bias in the provision of city services. As noted, there do exist differences in the kinds of services that white and non-white neighborhoods tend to request. Though our analysis holds these differences constant – using only within-service variation – it remains possible that there could be differential responsiveness (across services) in the direction anticipated by the literature if white neighborhoods tend to consistently request services that, on average, can be closed faster than the services typically requested by non-white neighborhoods. Additionally, our analysis does not speak to the *quality* of service provision, or even the quality of neighborhood conditions more generally. For

example, it remains possible that street conditions in white neighborhoods are better than in non-white neighborhoods. For one, it is possible that government, when called upon, does a better job repairing streets in white neighborhoods relative to non-white neighborhoods. It is also possible that government repairs roads, bridges, and streetlights in white neighborhoods regularly and without citizen intervention, but does not do the same in non-white neighborhoods. Both of these possibilities would suggest that residents in white neighborhoods are getting better service provision even if government is equally responsiveness when called upon for service. Our analysis can only speak to whether – *when called* to repair a particular issue – government responds to white (affluent) neighborhoods at the same speed that it responds to non-white (poor) neighborhoods making a request about that same issue.

Our primary conclusion is that service provision appears to reflect primarily the nature of the service requested and the city it is being requested in. Along these lines, we see further exploring bureaucratic capacity and institutional arrangement as the next logical step. It is obvious here that city capacity plays an important role in how and when services are provided. Future work may directly explore how the staffing and financial capacity of the agencies responsible for particular requests explains responsiveness, and even moderates any relationship between neighborhood affluence and response time. Perhaps agencies with sufficient staffing and a large budget are those most able to respond to neighborhoods unconditional on the characteristics of the neighborhood. In contrast, it seems plausible that divisions facing significant budget constraints may prioritize particular neighborhoods over others. In short, our results point to a future research agenda focused not on bureaucratic discretion, but on bureaucratic restraints, their origins, and their consequences for responsiveness.

In light of past experimental work, we see our work as pointing to a normatively positive outcome. We find that government is responsiveness to real-world requests from *everyone* – helping to keep the streets clean, the infrastructure free of graffiti, and the street lights up and running – and do not respond to some faster than others. In short, on average, city

governments tend to respond to service requests from all its citizen with the same relative urgency.

References

Ayres, Ian, and Peter Siegelman. 1995. "Race and Gender Discrimination in Bargaining for a New Car." *American Economic Review* 85(3): 304–321.

Bartels, Larry M. 2008. *Unequal Democracy: The Political Economy of the New Gilded Age*. Princeton: Princeton University Press.

Bertrand, Marianne, and Sendhil Mullainathan. 2004. "Are Emily and Greg More Employable Than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination." *American Economic Review* 94(4): 991–1013.

Bhatti, Yosef, and Robert S. Erikson. 2011. "How Poorly Are the Poor Represented in the U.S. Senate?" In *Who Gets Represented?*, eds. Peter K. Enns, and Christopher Wlezien. New York: Russell Sage Foundation.

Burnett, Craig M., and Vladimir Kogan. 2017. "The Politics of Potholes: Service Quality and Retrospective Voting in Local Elections." *Journal of Politics* 79(1): 302–314.

Butler, Daniel M., and David E. Broockman. 2011. "Do Politicians Racially Discriminate Against Constituents? A Field Experiment on State Legislators." *American Journal of Political Science* 55(3): 463–477.

Butler, Daniel M., Christopher F. Karpowitz, and Jeremy C. Pope. 2012. "A Field Experiment on Legislators' Home Styles: Service versus Policy." *Journal of Politics* 74(2): 474–486.

Cain, Bruce E., John Ferejohn, and Morris P. Fiorina. 1987. *The Personal Vote: Constituency Service and Electoral Independence*. Cambridge: Harvard University Press.

Carnes, Nicholas, and John Holbein. 2019. "Do Public Officials Exhibit Social Class Biases When They Handle Casework? Evidence from Multiple Correspondence Experiments." *PLOS One* 14(3): 1–9.

Caughey, Devin, and Christopher Warshaw. 2018. "Policy Preferences and Policy Change: Dynamic Responsiveness in the American States, 1936–2014." *American Political Science Review* 112(2): 249–266.

Christensen, Darin, and Simon Ejdemyr. 2018. "Do Elections Improve Constituency Responsiveness? Evidence from U.S. Cities." *Political Science Research and Methods* .

Costa, Mia. 2017. "How Responsive are Political Elites? A Meta-Analysis of Experiments on Public Officials." *Journal of Experimental Political Science* 4(3): 241–254.

Einstein, Katherine Levine, and David M. Glick. 2017. "Does Race Affect Access to Government Services? An Experiment Exploring Street-Level Bureaucrats and Access to Public Housing." *American Journal of Political Science* 61(1): 100–116.

Erikson, Robert S., Gerald C. Wright, and John P. McIver. 1993. *Statehouse Democracy: Public Opinion and Policy in the American States*. New York: Cambridge University

Press.

Fenno, Richard F. 1978. *Home Style: House Members in Their Districts*. Boston: Little, Brown and Company.

Gilens, Martin. 2012. *Affluence and Influence: Economic Inequality and Political Power in America*. Princeton: Princeton University Press.

Griffin, John D., and Brian Newman. 2008. *Minority Report: Evaluating Political Equality in America*. Chicago: University of Chicago Press.

Harden, Jeffrey J. 2016. *Multidimensional Democracy: A Supply and Demand Theory of Representation in American Legislatures*. Cambridge: Cambridge University Press.

King, Gary. 1991. "Constituency Service and Incumbency Advantage." *British Journal of Political Science* 21(1): 119–128.

Lajevardi, Nazita. 2018. "Access Denied: Exploring Muslim American Representation and Exclusion by State Legislators." *Politics, Groups, and Identities* .

Lax, Jeffrey R., and Justin H. Phillips. 2012. "The Democratic Deficit in the States." *American Journal of Political Science* 56(1): 148–166.

Lowande, Kenneth, and Andrew Proctor. n.d. "Bureaucratic Responsiveness to LGBT Americans." *American Journal of Political Science* . `https://bit.ly/32BSYao`.

Mendez, Matthew S., and Christian R. Grose. 2018. "Doubling Down: Inequality in Responsiveness and the Policy Preferences of Elected Officials." *Legislative Studies Quarterly* 43(3): 457–491.

Pager, Devah, Bruce Western, and Bart Bonikowski. 2009. "Discrimination in Low-Wage Labor Market: A Field Experiment." *American Sociological Review* 74(5): 777–799.

Parker, David C.W., and Craig Goodman. 2009. "Making a Good Impression: Resource Allocation, Home Styles, and Washington Work." *Legislative Studies Quarterly* 34(4): 493–524.

Schaffner, Brian F., Jesse H. Rhodes, and Raymond J. La Raja. 2016. "Race- and Class-Based Inequality and Representation in Local Government." Paper presented at the Annual Meeting of the American Political Science Association, Philadelphia. `https://bit.ly/30LlggT`.

Tausanovitch, Chris. 2016. "Income, Ideology, and Representation." *RSF: The Russell Sage Journal of the Social Sciences* 2(7): 33–50.

Tausanovitch, Chris, and Christopher Warshaw. 2014. "Representation in Municipal Government." *American Political Science Review* 108(3): 605–641.

Tucker, Patrick. 2018. "The Demand for Non-Ideological Representation in a Polarized World." Unpublished paper, `https://bit.ly/32G3qxF`.

White, Ariel R., Noah L. Nathan, and Julie K. Faller. 2015. "What Do I Need to Vote? Bureaucratic Discretion and Discrimination by Local Election Officials." *American*

Political Science Review 109(1): 129–142.