

The (Online) Politics of Housing in the United States:
Decoding Debates on ‘Housing Twitter’

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April 2021

Abstract

The repercussions of the 2007 Global Financial Crisis on housing are still being felt. The uneven recovery has created housing crises in many US cities that few people can ignore. The swell of activism has spurred politicians to push for reforms and state interventions that often create a whole new set of debates. This paper examines the nature of these debates on ‘Housing Twitter,’ a segment of the popular social media platform dedicated to debating housing issues. We focus on three themes central to housing policy: Rent Control and Protection, Housing Access, and Housing Supply. We show that Twitter activity does not always match popular perceptions. Public housing is by far the most common housing issue Twitter users discuss. Rent Control is dominant only in California, which drives much of the debate in that theme, but also has an outsized influence on issues of Housing Supply.

Keywords: Housing politics/policy, public housing, YIMBY, social media, twitter

¹ We thank the UCLA Ziman Center for Real Estate’s Rosalinde and Arthur Gilbert Program in Real Estate, Finance and Urban Economics for generous funding, Dhruv Chakraborty and Emma French for research assistance, and Tala Oszkay and Jason Spicer for feedback and suggestions.

The 2007 Global Financial Crisis (GFC) and US recession thereafter ravaged the housing market. The recovery was uneven. The national homeownership rate declined over a decade: US homeownership had peaked in 2006 at 69% and fell to lowest level in decades in 2016 at 63% (US Census Bureau 2021). Put another way, despite the country adding 25 million people, the number of homeowners decreased by nearly 2 million. The decline in homeownership was only one aspect of the repercussions of a financial system expanding based on subprime and predatory loans and unequal housing market. Investment funds targeted markets with large quantities of foreclosed homes and in order to enter the single family real estate market (Abood 2017; Fields 2018). Especially in communities of color, former owners once again became renters. The swell in the number of renters pushed rents to ever higher levels so that in 2020, no metropolitan area was affordable to minimum wage earners (Joint Center for Housing Studies 2020).

The recovery has been highly economically, racially, and geographically uneven. In the absence of some form of wealth tax as Piketty has recommended (2017), wealth among the super-rich has continued to outpace economic growth and exacerbated housing unaffordability. Many metropolitan areas remain unaffordable to lower- and middle-income people without devoting most of their income to housing, sometimes sacrificing decent, healthy conditions, and neighborhood cohesion. The economic shock of the GFC and housing inequality has led to increasing advocacy and political pressure for some government intervention. The results have ranged from more regulation to less. While New York and California passed new legislation curtailing spiking rental prices (i.e. anti-rent gauging), Minneapolis and Oregon have eliminated single-family zoning requirements (i.e. deregulating development). Many of these reforms originated with political advocacy organizations connecting with their memberships and the public

along new digital channels. We are particularly interested in the rise of Twitter and what it might tell us about people’s housing preferences across the housing-political spectrum.²

This paper provides an overview of what Twitter terms ‘conversations’ happening around housing issues on social media. Twitter has recently become a primary platform for political communication by activists, academics, political leaders, and journalists (e.g. Sanchez 2021). In recent years, ‘housing Twitter’ has become a recognized forum to promote ideas, organize constituents, share research, or heckle opponents (Anzilotti 2019). We examine the politics of housing across the United States via social media activity as a proxy, and how housing Twitter evolved between 2015 and 2020.³ We assembled a dataset from collecting all tweets containing one of nineteen different housing politics keywords, and generated three thematic clusters: (1) rent regulations and protections, (2) housing access, and (3) housing supply. These roughly correspond to policies around rent control, fair housing, and zoning deregulation. Twitter provides an efficient method to quickly identify some dominant issues on housing twitter, where they are situated geographically and how people discuss them.

We collected data from Twitter from users identified as residing in the United States. Our findings – compiled into the *US Housing Politics Database* – contains the text of each tweet, the type of tweet (e.g. original vs retweet or reply), and location of the user (when available). For the five year period, we collected a total of 2.4 million tweets. About a third were original content and the remaining two-thirds retweets (i.e. reposting original content). After cleaning the text, we

² For example, if we crudely laid out some clusters from left to right. First, leftmost People’s Action coordinated a ‘Homes Guarantee’ vision supported by the Campaign of Bernie Sanders. Second, California Yes In My Backyard (YIMBY) Campaign has worked closely with Senator Scott Wiener to promote zoning deregulations across California. Next Not In My Backyard proponents preventing the construction of Shelters for the homeless in Santa Monica and Koreatown, Los Angeles. Finally, rightmost, Trump stoking racist and classist tropes against low-income tenants moving to the suburbs.

³ Herein we do not claim online behavior can serve as a one-to-one proxy for in-real-life activity (see Koltsova and Selivanova 2019).

produce a series of metrics to provide a snapshot of debates happening within each theme. We also use the location of tweets to show how themes vary across metropolitan areas.

We find that *housing access* dominated the social media conversations. The most common keyword was “public housing.” In contrast, despite their reputation for loud advocacy, “Yes In My Backyard” (or “YIMBY”) trails far behind keywords in each of our thematic clusters, and issues of *housing supply* lead in none of the major US metro areas. Before 2020, spikes in online debate run parallel to political cycles, wherein local or state battles over big housing legislations like California Assembly Bill 1482 (The Tenant Protection Act of 2019). While not the focus of the paper, the coronavirus pandemic clearly expanded the boundaries of housing Twitter. Over 40% of all the activity we recorded happened in 2020 (double what we would expect were activity distributed equally between years).

The paper proceeds with a brief overview of the landscape of housing movements and debates. The next section details the method for collection and cleaning data from Twitter. It also explains the main metric used in text-based analyses. The last two sections summarize the main results and provide and conclude with a reflection on how this type of research may provide a useful set of tools for housing advocates, planners, and policy makers.

A tradition of housing advocacy research

Research on housing conditions and policy served as an object of analysis at the birthplace US urban sociology (Du Bois 1899). The field of housing studies also has a rich history of policy-oriented studies. For instance, scholars have explained the variety of housing policies (Schwartz 2014), how the housing system has perpetuated racial hierarchy (Taylor 2019), what a right to housing might look like (Hartman 1998), and how lobbyists and newspaper media play a role in

policy formation (Jacobs 2015). Housing and urban studies also have a robust history of investigating how urban social movements often manifest around housing (Castells 1983), the role of gender, race, and age in organizing (Leavitt and Saegert 1990), how housing movements employ a range of strategies such as protest, legal, and electoral to achieve their means (Dreier 1984), albeit often in ways tethered to American homeownership ideology (Heskin 1983), and therein limiting more significant transformation (Marcuse 1999).

Yet among the range of these studies, most research conducting US wide analyses do not engage political dynamics (claims, demands, protest, lobbying, etc.), but rather various market analyses. Meanwhile, the birth of social media and its history are hard to distinguish from contentious politics. Occupy Wall Street, the Arab Spring, and los indignados each in separate ways were strengthened and made infamous in large part due to the role of social media (Costanza-Chock 2012; Bennett and Segerberg 2012).

Data and Method

Twitter as data

Social Media has gained traction as a legitimate source of research data over the past few years across the social sciences and urban humanities, and increasingly to study urban issues. Twitter not only provides a valuable perspective from people involved in various salient conversations, its massive bandwidth also provides a more consistent coverage than newspapers (Steinert-Threlkeld 2018). Where news reports are selective, Twitter's expansiveness can help establish how consumer sentiment, social movements, and policy preferences have transformed over time.

Twitter has the advantage of combining multiple types of data to create a rich unit of analysis that can be used to break down different issues. Researchers often use only parts of the

data. Twitter allows users to attach precise geographic location to their tweets. While only about 1% of all users choose to share their location, when multiplied by millions of users over the span of a year, this can generate hundreds of thousands of data points. This feature has been used to study mobility in New York City (Wang et al. 2018) and segregation in Louisville (Shelton, Poorthuis, and Zook 2015). We aim to complement a spatialized, quantification approach with qualitative details.

We believe the primary richness of Twitter data is the text itself. Textual analysis usually relies on first creating a database pertaining to a specific topic before analyzing the content of relevant tweets. Following such steps, scholars have analyzed attitudes towards transit (Schweitzer 2014) and people's perceptions and attitudes in cities (Hess, Iacobucci, and Väiko 2017). Hashtags have been used to examine activism and the spread of movements like Black Lives Matter (Dadas 2018) or immigration reform (Nicholls, Uitermark, and van Haperen 2021). We aim to create a more comprehensive picture of human behavior by combining large data mining and counts with qualitative reading of individual tweets. This can be achieved by examining tweets content on complex phenomenon like gentrification (Dighton 2019) or with machine learning techniques to retrieve demographic information, for example (see Koltsova and Selivanova 2019). While we hope to benevolently wade into digital waters, researchers must employ and interpret their findings with caution.⁴

⁴ Much remains unknown to the public and researchers about proprietary metadata collection strategies (i.e. algorithms) and *what determines* curated content and *at what rate*. Most social media is not a neutral landscape (unlike, for instance, Wikipedia, which has no advertising or metadata motivations. i.e. no profit motive). The general public became more aware of these topics with the 2020 release of *The Social Dilemma*, featuring a number of disillusioned tech employees and researchers, even though scholars have been warning for years about the exploding wealth and power of tech companies (Lanier 2018; Zuboff 2019; Acker and Donovan 2019).

Data retrieval

While the functionality of Twitter has changed little since its inception in 2006, its architecture and how to retrieve data underwent major changes in the last few years.⁵ Notably, Twitter imposed greater restrictions and monetized data access more systematically so that many methods for acquiring data have become obsolete or unusable without breaching the corporation's terms of use. Between 2018 and 2020, Twitter offered a subscription-style access to its data that can be used to download tweets as they appear ('stream') or from its full archive.⁶ We relied on this type of subscription to retrieve archival data, but many of the methods apply equally well to streaming.

We used a script written in Python to query the data meeting a set of criteria: basically, a set of rules to tell the Application Programming Interface (API) what tweets to retrieve. There are many options to retrieve tweets depending on the goal. We are interested in specific topics, making an approach based on keywords within the text of tweets the primary search method. The main difficulty is the choice of keywords. Too broad a term and the greater the noise associated with the collection of tweets. 'Eviction' and 'Gentrification,' for example, while relevant to housing movements, provide too large an umbrella for our immediate interests.⁷

Our word search comprised of nineteen policy keywords (*see* TABLE 1). From the initial collection of 2.4 million tweets, 1,870,140 tweets met all the criteria for inclusion in the analysis.⁸

⁵ All information is accurate as of March 30, 2021.

⁶ In February 2021, Twitter launched a new license for no-cost academic research.

⁷ One instance that appeared in our investigation, is the hashtag '#bb22.' The hashtag refers to the 22nd season of the reality television show Big Brother which uses the term 'eviction' when someone is eliminated from the competition. While the hashtag was often tied back to housing issues as people criticized the use of the term 'eviction' in the midst of a real eviction crisis, this kind of noise makes the use of words with ambiguous meaning difficult.

⁸ Tweets that could be classified were not discarded. They could not be classified because the keywords were in the URL of a posted link, which tells us the tweet is relevant, but prevents us from using the full range of text-based tools.

We collapse the keywords into three overarching themes: (1) RENT REGULATION AND PROTECTIONS, (2) HOUSING ACCESS, and (3) HOUSING SUPPLY. We clustered themes as they correspond to major housing debates that have shaped housing politics in the United States since 2015. Rent Regulation and Protections focuses on the set of tools designed to prevent rents from rising so rapidly that people can no longer afford their home. Housing Access emphasizes the policies that expand access to housing through anti-discrimination legislation (e.g. Affirmatively Furthering Fair Housing) and investment in subsidized housing. Finally, Housing Supply captures classical economic arguments to deregulate markets and the rapid rise of proponents of dense development under the banner of “Yes, in my backyard” (YIMBY), a rhetorical ploy on NIMBY-ism.

We collected all tweets that contained one of the keywords between January 1, 2015 and December 31, 2020. We use 2015 as the start date because that is when Twitter reached 300 million unique monthly users and that number has plateaued since (reaching 330 million by 2019). The year 2014 also roughly matches the timing of the rise of popular housing movements that emerged out of the bifurcated economic recovery. To confirm that we were not needlessly censoring our sample, we downloaded data going back to 2010. We found that 99% of the relevant data post-dates 2014.

We use four elements of tweets: the text the user posted, the nature of the tweet (original content vs retweet or quote), the unique ID of the user, and the inputted location of the user.⁹ The text is what people see when using the platform (140 characters shifted to 280 characters in

⁹ Defining terms: A ‘tweet’ is an online post on Twitter. A ‘retweet’ is a function that recirculates someone else’s tweet on one’s own twitter home timeline, similar to a ‘quote tweet’ which is a retweet that also adds a comment or media. Finally a ‘thread’ is a series of connected tweets by the author or responders. For expansive Twitter glossary see <https://help.twitter.com/en/glossary>.

November 2017). The nature of the tweet is important because it tells us if the text is original material posted by the user or whether it was simply reposted. It also tells us if the text was a response and to which tweet. Users and tweets have unique ID that is not visible to the user; it is a unique numeric code that Twitter uses in its database and allows us match information to users or tweets. Finally, while few users share their precise location, Twitter offers less precise location information based on the user's profile. This means that what geographic information we have is not about where the tweet was produced, but where the user is *assumed* to be based. This information includes, at its most precise, the city and in most cases the county and state. We use the county information to match all users with information to Metropolitan Statistical Area (MSA), which gives us a measure of activity at the regional level.

We do not consider our Twitter database to be a representative sample. While scholars have established demographic biases among Twitter users, after controlling for those demographic characteristics, it seems that social media does show similar results to surveys in terms of political interests, opinions, and action (Mellon and Prosser 2017).¹⁰ Yet findings have been mixed and complicated (Conrad et al. 2019). For instance, Koc-Michalska et al. (2021) show how Twitter tends to foster 'mansplaining,' perpetuating gender hierarchies online, and others warn against plug and chug tools like sentiment analysis (Sen, Flöck, and Wagner 2020).

Data cleaning and analysis

We use tweets' qualitative information (the text content) to produce quantitative data (tweets as data points). The process relies primarily on cleaning the text so that tweets can be

¹⁰ Mellon and Prossner have recommended the possibility of weighing the data to match demographic characteristics in order to consider Twitter and Facebook activity as representative (Miranda Filho, Almeida, and Pappa 2015)

counted and sorted into different categories. The cleaned text can then be used to extract information about the nature of tweets within categories.

The cleaning process has two steps. First, we remove all objects characteristic of tweets. Objects are all the elements that complement the text, like images and links that can be embedded in tweets. When Twitter formats the data for extraction, links, images, and other graphics like emoticons are converted to text. For example, images become a set of text information about the size of the object. We use the consistent formatting of these objects into text (e.g. links contain “http”) to remove them from every tweet. Second, we use a list of common ‘stop words’ that contain little substantive information – e.g. ‘and’ or ‘very’ – to remove another layer of extraneous information. Hashtag is the only object that Twitter automatically separates from the Tweet. Hashtags were one of the social media innovations Twitter popularized. It allows the tagging of tweets in such a way that they become more easily searchable and associated with other tweets that have the same tag. The separation of hashtags into a different column in the data makes it both easy to isolate and use in the summary of data.

The stripped-down version of the datapoint only includes the authored, and therefore substantial, words of the tweet. At this stage, it is important to differentiate between thematic activity and agenda setting. Original tweets are only a fraction of the total volume produced on the platform. Twitter relies on retweets to drive traffic and broaden exposure. This means that a single original tweet may appear in the data thousands of times if it gained significant traction. In terms of activity, we are interested in the volume of activity, but in terms of themes driving conversations, we are more interested in original content. The data includes a column that codes individual tweets as original or retweets. We use this as a first pass at the data to extract original content.

Not all tweets are marked as retweet even if they contain nearly the same material. That is because many tweets are generated from common sources like newspaper or blog articles that have a function to share the headline directly from the article. We remove all tweets that have identical text – what we call ‘standardized tweets’ – to reduce the weight such sources have. This does not completely eliminate near duplicates, but keeps standardized tweets only when the user modified the readymade content in some way (e.g. by adding a hashtag).

Text analysis can range from simple summaries of word frequency to the minute interpretation of text line by line. In this project we adopt a middle ground method. We use the cleaned data to generate a series of summary measures that provide insights into each of the themes. The main tool we use to simplify the data is the n-gram. The n-gram is a grouping of words that occur together and can then be counted. The ‘n’ refers to the size of the grouping (usually 2 or 3). We use trigrams, groupings of three words that occur in succession to identify some of the main debates occurring during periods of peak activity within each theme. For example, one grouping is ‘housing affordability crisis.’ The number of times it occurs and when alerts us to dominant debates. It also allows us to find representative tweets that provide greater context.

Findings

Dominant topics and issues

The activity within each theme is uneven. The frequency of each keyword in Table 1 shows that Housing Access was the most discussed theme, followed by Rent Regulation and Protections, and Housing Supply. Within each category the top two keywords dominate, suggesting that conversations in some way converge and focus on a few topics. Within each theme, we note similar focus on a small number of topics. Figure 1 show the frequency of words (excluding the keywords) in the entire dataset and within each theme. As with the themes, individual words associated with

Housing Access dominate. To our surprise, no word from the Housing Supply theme, and only two words from Rent Regulation and Protection make it into the overall top twenty.

The thematic distributions mostly include variants of the keywords (e.g. Act as the logical extension of fair housing). However, it also reveals differences in geographic and political scope. Housing Access is the only theme to feature political figures (President Donald Trump and HUD secretary Ben Carson) and while New York City is featured, it ranks low compared to Rent Regulation and Protection where California is the most frequent word and NYC follows close behind. The words in rent regulation also tend to be more politically dynamic, including “strike,” “vote,” and “support.” Housing Supply similarly leans toward change with “reform” topping the ranking.

The issues that surface in each theme also differ. Housing Access is the only theme that includes a likely reference to race while homelessness appears only in Housing Supply. Landlords are the main source of activity for Rent Regulation. We use the word association summary provided by n-grams to gain insights into the nature of these issue areas. The most common association with landlords points to raising rents, selling properties, and opposition to rent control. In other words, most conversations about landlords tend to pit them in opposition to rent control and maintaining housing affordability. Within Housing Access, race clearly intersects with discrimination as the most frequent associations with ‘black.’ after the phrase ‘Black Lives Matter,’ relate to housing discrimination. Within the Housing Supply theme, NIMBY resistance to housing, specifically for homeless people, and the provision of shelter are the dominant themes.

While we can interpret conversations by the words they use, Twitter makes available in the form of hashtag a tool that locates tweets automatically. FIGURE 2 shows the top 10 most frequent hashtags within each theme. There is clear overlap with the untagged words, but a few

more topics emerge. The association with ambitious political program, for example, becomes clear through the use of #GreenNewDeal and #MedicareForAll. The hashtag also highlights specific policies like #AB1482 (CA Tenant Protection Act). Twitter activity peaks alongside prominent policy debates, illustrating the timeliness of Twitter. Next, we tease out these trends over time.

Time trends

Like news media, social media is highly cyclical. One theme takes hold of the public's attention and dominates until interest wanes or a new issue makes a bigger splash. One of the potential benefits of using Twitter to investigate issues specific to housing (or other issues) is that it reveals phenomena beyond conventional news outlets. In this section, we investigate the topics driving conversations at peak times for each theme. Figure 3 shows the volume of tweets within each theme from January 1, 2015 to January 1, 2021.

The trend lines show that the pattern of peaks and troughs applies to housing access and is more muted for the other two themes. Activity within Housing Supply and Rent Regulation and Protection began increasing in mid-2017 for Housing Supply and early 2018 for Rent Regulation and Protection. From its slow start, Rent Regulation and Protection overtook housing access as the most discussed theme in three peak periods and had the two largest peaks in late 2019 and early 2020. Housing Supply, in contrast, despite a fairly constant rate of activity, never rose above the other two themes in terms of volume.

Word associations in the form of trigrams give us clues as to the nature of peak activities. Table 2 shows the topics that were the most common in each of the themes for every peak period (where a theme is missing, it is because there were too few data points to draw conclusions). The table reveals more clearly the reach of different themes. For example, the public housing smoking ban gathered more sustained activity than rent control. The 2016 smoking ban enacted by HUD to

prohibit smoking in public housing, generated 5500 unique tweets, while rent control generated less than half that activity at its peak.

Different mechanisms drive the most common topics in each theme. Rent Regulation and Protection follows political cycles of elections. Impactful propositions or legislative reforms like AB1482 in California or statewide rent regulation in Oregon generated the most traffic during their respective cycles. Another example is how policy cycles across scales also drives Twitter activity. In 2018, contentious political debates over rent control in Seattle, which did not receive significant news coverage outside of Washington state, generated such a large volume of activity that it ranked in the top five most discussed issues in Rent Regulation throughout our 2014-2020 window.

Housing Access tends to follow events happening at the Federal level and is less tied to election cycles than to policies being debated or implemented by the Department of Housing and Urban Development. The “Fair Housing Act” is the top association in most time periods. While President Trump and Secretary Carson’s roll-back of Affirmatively Furthering Fair Housing Act generated the highest peak for that theme in 2018, there is significant activity not tied to political events. Conversations around the preservation of public housing and the welfare of residents are a near constant and generate high volumes of activity despite the topic rarely being at the forefront of housing Twitter.

Housing Supply, despite being a contentious topic among housing scholars (e.g. Rodriguez-Pose and Storper 2019; Manville, Lens, and Monkkonen 2020), not only generated the least activity, but much of that activity is the product of news or blog articles. Almost every peak in activity can be tied to the publication of a single article. In many cases, it is difficult to identify a defining conversation because most tweets are only slightly modified versions of the same source material. Despite the narrow sources, the online activity tends to be scattered across the country.

That is, articles that focus on a single place and/or come from a single source will be shared widely to a national audience, speaking to the reach of the topic.

Geographic distribution

In addition to the timing of conversations, we are interested in where those conversations are taking place and where they are generated. Table 3 provides a series of metrics to evaluate the nature of Twitter usage in the 20 metropolitan areas with the greatest number of tweets. The first three rows show the equivalent measure for the main three themes. The last row, labeled TOTAL shows the values for the entire sample.

Twitter activity concentrates in the major metro areas, but the correlation is not perfect. Some metro areas like Portland are higher than they would be in a population ranking while others like Houston are lower. Given the correlation between Twitter activity and political reforms or elections, metro areas like Portland and Seattle, the largest cities in two states with active housing reform agenda are expected to be highly active. Similarly, metro areas in California are highly active.

The share of original tweets separates cities that produce content from those that consume it. San Francisco and San Jose stand out as having high shares of original tweets (close to 50%), meaning that fewer people in these places retweet other people's content. In contrast, other cities in the Southwest (Phoenix, Dallas, Houston) all have original tweet percentages lower than 30%. The difference suggests that places with an active local housing policy debate produce more original content while cities that have fewer organizations and lower political activity around housing mostly share what others produce. The ratio of unique users to tweets is another measure of activity. The lower the ratio the more active users are. We see a similar divide here. Cities with active political debates tend to have lower ratios than less active cities. Therefore, we may be able to draw some conclusions about the intensity of local housing policy debate based on the ratio of

twitter behavior. Not that this explains the landscape of policies, yet it might help researchers search out markets with/without active housing policy debates.

Twitter is a platform designed for sharing and the ability to reach a large audience can significantly change how Twitter is used. The average number of retweets (RT) highlights influential places. Washington D.C. aptly has the highest average RT, over twice the sample's average. However we also found that social media activities doesn't necessarily match newspaper content or frequency (Gorrell et al. 2020). While Housing Supply themes (esp. YIMBY) have featured the most influential newspapers across the country, we found YIMBY less influential than other housing policy issues.

The last three columns show the number of tweets within each theme (the numbers are not reported for the themes themselves as they would be the same as their totals). This is an indication of the theme that dominates in each region. Rent Control and Protection is the leading theme only in California. Even in Portland and Seattle, which had active reform agenda in their state and local legislature, rent control falls being housing access. While we have shied away from correlating Twitter activity to housing market metrics, the dominance of the rent control debate in California, the epicenter of housing crises is hardly coincidental.

San Francisco dominates the Housing Supply debate. Over a quarter of all tweets in this them originated with users who profile is tied to San Francisco. In a few metro areas, Housing Supply generates nearly as much activity as Rent Control and Regulation, suggesting that, despite the overall smaller footprint, Housing Supply is indeed a dominant theme within local markets.

Conclusion

By creating a mixed-methodological approach to analyzing social media activity on ‘housing twitter,’ we reveal key debates, frequency, and network structure. Twitter’s empirically rich data API – if cleaned and calibrated – may aid researchers in gauging the content, impact, and structure of political issue discourse over space and time. Our approach aims to fill a methodological gap by mixing quantitative and qualitative components of the data: fusing data mining with some granular, tweet-by-tweet interpretation.

Our results confirm some intuitions, disrupt other expectations, and surprise us in other ways. Confirming one of our intuitions, large, liberal cities and states have highest frequency and intensity, and housing twitter is highly responsive to political cycles.¹¹ However, in terms of disruptions to our expectations, Public Housing was most frequently tweeted topic on housing twitter, whereas YIMBY showed significantly less presence despite widespread news coverage. Further discussion of homelessness tend to be more central to the Housing Supply theme than rent regulation, which is more concerned with the divides between renters and landlords. Finally, while institutional and political legacies of housing struggles likely influence San Francisco’s prominence in our sample, we also find what others have labeled a digital divide in online activism (Schradié 2018) between cities where the internet is integral to the overall culture like the Bay Area and cities that tend to be secondary in producing internet culture, like Houston.

People tweet because they demand some form of change. People may see rent control as an essential strategy to wade off displacement, increasing housing supply a viable option for densifying cities, or anti-low income or anti-public housing rhetoric as anti-Black and stigmatizing. Some media researchers have suggested that online data will be doubling in quantity on a yearly basis for the next decade at least. If so, we are witnessing an explosive opportunity for

¹¹ However, we intentionally generated our selection based on policy names, so this remains unsurprising.

new social scientific analysis of politics across space and time, disrupting news media landscapes, or advertising channels. Much remains to be discovered about the hidden rules of the game: the algorithms that drive some of the associations that ultimately impact and predict behavior online (e.g. 2016 US election and Russian online interference via Facebook). So social media is no neutral zone; but no political space ever was. Tracking people's tweets creates a digital fingerprint of political behavior. In aggregate, we may be able to draw broader connections. When people tweet, they enter the digital public square and engaging in political discourse, debate, argument. Only by continuing to understand how people engage politically can we capture a more accurate picture the politics of housing.

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Figures

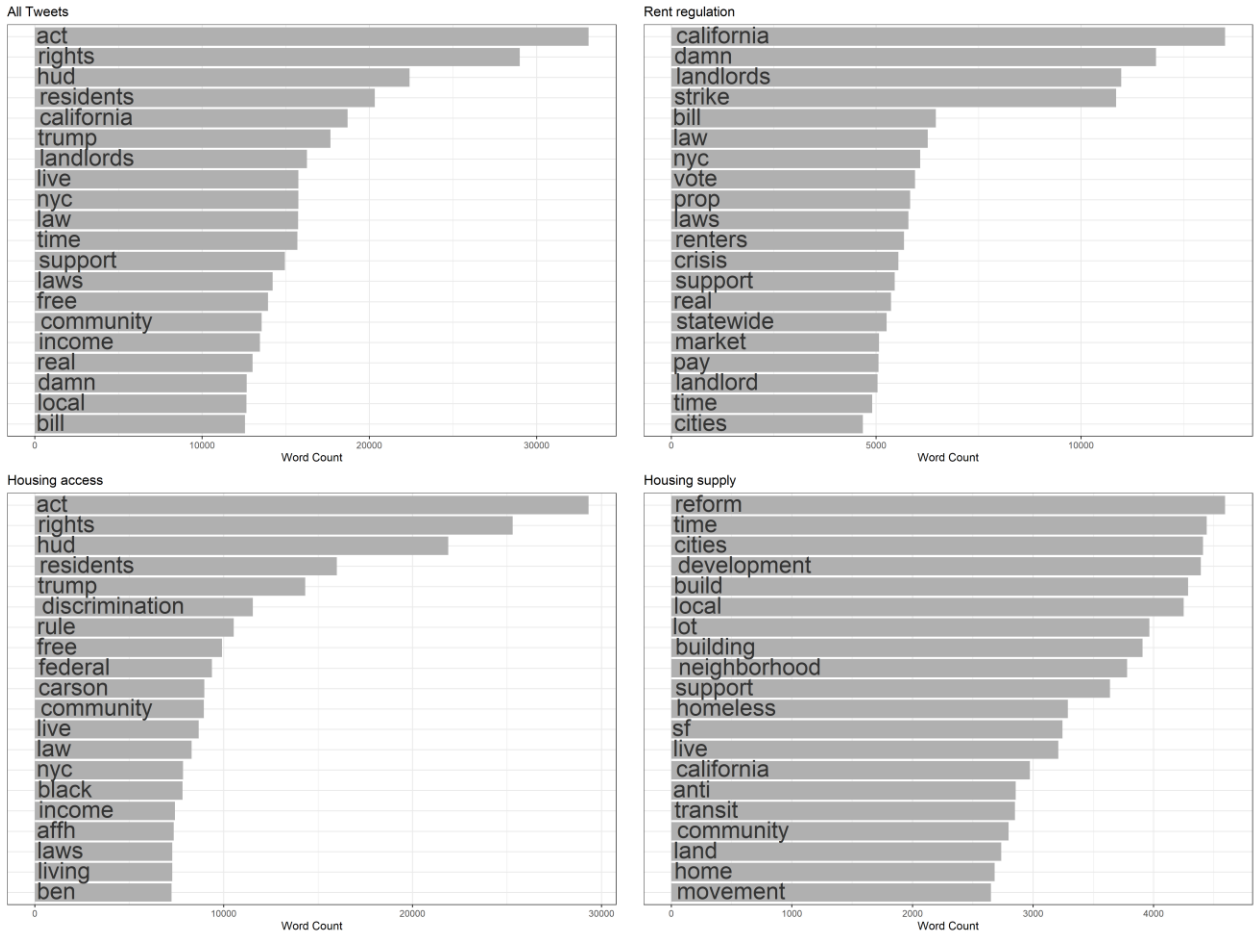


Figure 1. Frequency of most common words in the dataset and within each theme. Counts are from original tweets only. All common 'stop words' were excluded from the count as well as the keywords that were used to collect the data.

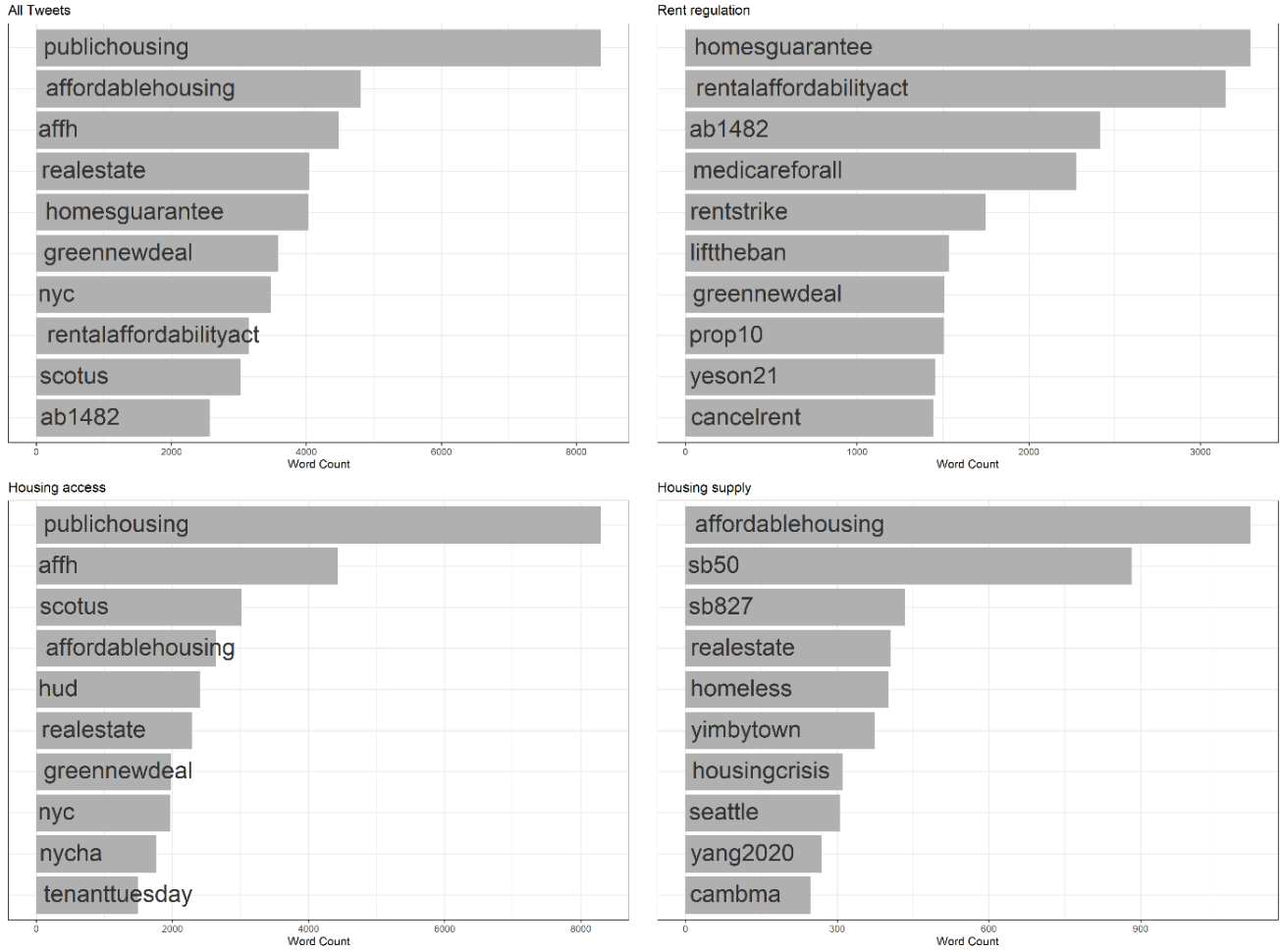


Figure 2. Frequency of hashtags in the dataset and within each theme. Counts are from original tweets only.

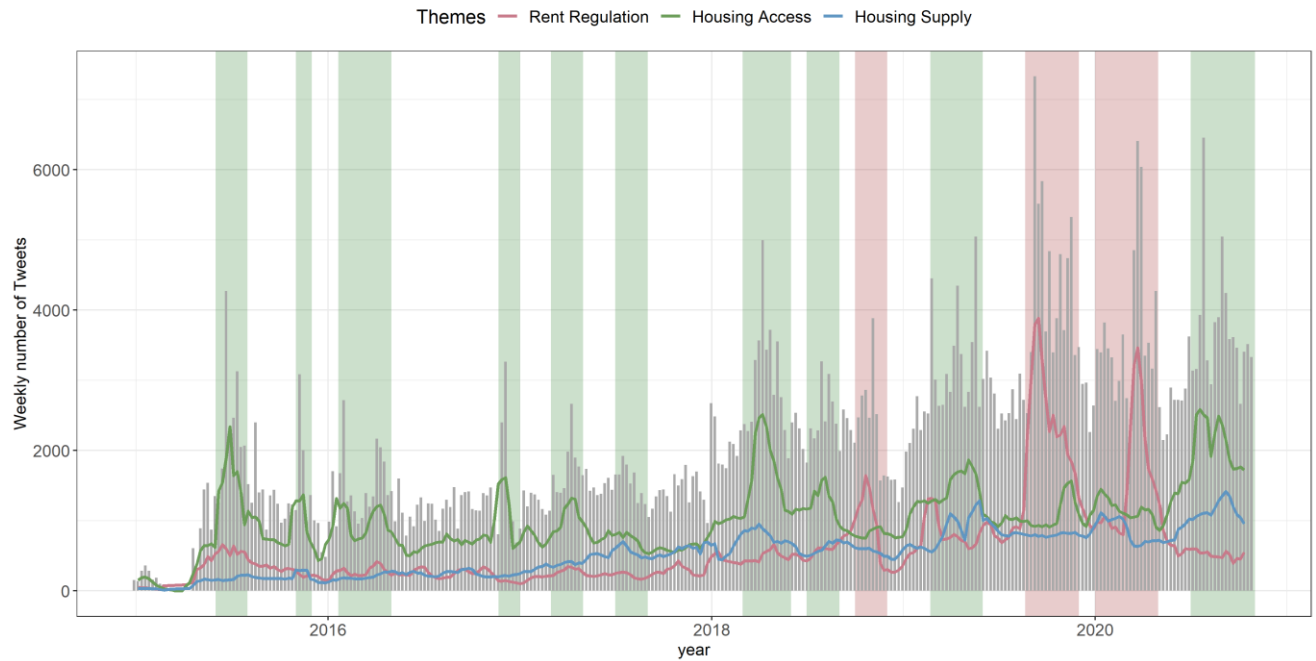


Figure 3. Trends in activity within each theme over time. Counts only include original tweets (no retweets). The color columns indicate the periods of peak activity (and dominant theme) that we used to study themes in Table 2.

Tables

Table 1. Keywords used to retrieve Tweets and frequency of the keywords in the text of Tweets*

THEME	KEYWORD	N
RENT REGULATIONS AND PROTECTION	Rent control	370844
	Rent freeze	96,877
	Rent strike	46,425
	Tenants' rights	26,409
	Tenants' protection	17,187
	Rent stabilization	15,743
	Cancel rent	14,825
	Rent cap	7,481
	Total	597,791
HOUSING ACCESS	Public housing	588,423
	Fair housing	272,135
	AFFH	50,945
	Rent is too damn high	28,990
	TOTAL	940,493
HOUSING SUPPLY	Not in my backyard (NIMBY)	143,702
	Yes in my backyard (YIMBY)	138,518
	Exclusionary zoning	20,229
	Zoning reform	12,872
	Housing (de)regulation	12,362
	Total	327,683
TOTAL		1,870,140

*Between 01/01/2015 and 01/01/2021 for profiles located in the United States. Each keyword search includes most likely variations (e.g. with and without spaces to account for hashtags). Totals are lower than overall dataset because some of the keywords appear in the URL of linked website rather than in the text the user posted.

Table 2. Main themes driving conversations during periods of peak activity (based on peaks in Figure 3).

Topic	Year	Month	Common themes	Typical Tweet	Context
1	2015	June-July	rent control debate	"Heated rent control Seattle debate finds little room for compromise"	Debate over institution of rent control in Seattle
2	2015	June-July	disparate impact claims	"Wow, @SCOTUSblog says ""Disparate impact claims are cognizable under the Fair Housing Act."" Vote 5-4."	US Supreme Court rules on disparate impact claims under the Fair Housing Act
3	2015	June-July	nimby attitude wane	"Hope for More Housing? Bay Area housing crisis may cause NIMBY attitudes to wane"	Pressure of housing cost hypothesized to change resistance to housing development
2	2015	November	smoking public housing	"Should HUD Ban Smoking in Public Housing? "	Debate over merits of a smoking ban in public housing
3	2015	November	Opposite isolation building	"By @ThisIsSethsBlog Yes, in my backyard: The opposite of NIMBY, the opposite of isolation."	Activity around Seth Godin's blog post on NIMBYism
1	2016	February-April	rent control pricey suburbs	"Rent control spreads from San Francisco to suburbs; such as Alameda, Richmond and Burlingame"	Tenant activist advocating for rent control in suburbs receiving spillover population from San Francisco
2	2016	February-April	Fair housing month	"April is Fair Housing Month! We are proud to support the ideals of the Fair Housing Act. #FairHousingForAll"	Fair housing month is opportunity to advertise various programs
3	2016	February-April	backyard mainstream Scandinavia	"Not in my backyard? Mainstream Scandinavia warily eyes record immigration"	News article on immigration policy in Scandinavia
2	2016	December	smoking public housing	"The Ban On Smoking In Public Housing Is Fascist and Un-American"	HUD implements smoking ban in public housing
3	2016	December	housing political coalition	"Yimby Nation: The Rise of America's Pro-Housing Political Coalition"	Article on the rise of YIMBYism
1	2017	March-April	NYC rent freeze	"Say goodbye to NYC's rent freeze"	NYC Rent Guidelines Board votes on end of 2-year rent freeze

2	2017	March-April	Fair housing month	"April is #FairHousing Month. Know your rights as a tenant or landlord @AZHousing @HUDgov"	Fair housing month is opportunity to advertise various programs
3	2017	March-April	nimby power structure	"How Seattle Is Dismantling a NIMBY Power Structure"	Article on policies to address housing shortage in Seattle
2	2017	July-August	Carson doesn't care	"Maxine Waters: Ben Carson 'doesn't care about people in public housing'"	Ben Carson targets fair housing rules and repeal of Obama era programs
3	2017	July-August	spreading yimby movement	"California Today: A Spreading 'Yimby' Movement"	Article on the rise of YIMBY movement in California
1	2018	March-May	anti rent control	"Tenants Gather Enough Signatures to Put Repeal of State's Anti-Rent Control Law on Ballot"	Movement to repeal Costa Hawkins gains momentum in California
2	2018	March-May	Fair housing enforcement	"HUD scales back fair housing enforcement under Ben Carson"	Suspension of Affirmatively Furthering Fair Housing rule
3	2018	March-May	market rate housing	"At least in the YIMBY space I don't know anyone saying that unrestricted market rate development alone will make housing affordable for all income levels..."	Multiple conversations about the nature of YIMBY
1	2018	July-August	Universal rent control	"New York tenants fight for universal rent control across the state"	Tenant activist push for universal rent control, a program some political campaigns in New York adopt
2	2018	July-August	smoking public housing/ era fair housing	"Ben Carson moves to roll back Obama-era fair housing rule"	Announcement of official beginning of smoking ban and repeal of AFFH allowed to proceed
1	2018	October-November	rent control laws/prop/measure	"All it does is repeal a State law that prohibits cities from setting their own rent control laws. Does not require rent control"	Momentum builds ahead of elections in California and New York where rent control reforms are central.
2	2018	October-November	public housing complex	"Cardi B Gives Away Hundreds of Coats in Brooklyn Public Housing Complex"	Charitable event is among other events taking place at public housing complexes

1	2019	March-May	Universal/statewide rent control	"#LandlordLies The real estate industry is trying to scare us into supporting mass displacement and skyrocketing rents. Don't believe them! New Yorkers #UniversalRentControl"	Continuation of tenant activism in New York and Oregon enacts statewide rent control
2	2019	March-May	Fair housing month	"A HUD official and close Trump ally spent a month of nights in public housing. Some question her motives"	In addition to Fair Housing Month, conversations about HUD official spending nights in public housing
3	2019	March-May	blame wealthy liberals	"America's Cities Are Unlivable. Blame Wealthy Liberals"	Article on failure of AB50 in California
1	2019	September-November	national rent control	"@BernieSanders National Rent Control? The only people that make money from that is the .gov"	Bernie Sanders campaign introduces national rent control to platform
3	2019	September-November	single family zoning	"the anti density pro single family protectionist who literally just hired the chief NIMBY in all of Seattle"	Various conversations on the role of single family zoning
1	2020	January-April	freeze rent/organize rent strike	"@MayorOfLA Rent freeze?" "With millions unable to pay for housing next month, organizers plan the largest #rentstrike in nearly a century"	Pandemic hits and demands for rent freeze quickly followed by organization of mass rent strikes
2	2020	January-April	Fair housing action plan	"NAR Approves Sweeping New Fair Housing Action Plan"	National Association of Realtors adopts new plan to strengthen fair housing access
3	2020	January-April	york yimby petermancinire	"YIMBY Stops By the Site of ODA's 303 East 44th Street Skyscraper in Midtown East - New York @newyorkyimby https://t.co/N1rx9loOA0 #petermancinire #madisonstates #realestate #nyc #eastside"	Series of post about developments in New York City

1	2020	July-October	Expand rent control	"An initiative to expand local governments' authority to enact rent control on residential property has qualified for the November ballot"	Election nears and organization around rent control picks up on themes of universal and national rent control
2	2020	July-October	Federal housing finance	"The Federal Housing Finance Agency (FHFA) has extended the moratorium on foreclosures through December 31, 2020"	
3	2020	July-October	fair housing regulation	"Donald Trump threatens to scrap Obama-era fair housing regulation"	Reaction to the repeal of AFFH and link to zoning regulation

Table 3. Summary statistics for the three Themes and the 20 metro areas with the greatest Twitter activity.

Category	# of Tweets	% original tweets	# unique users	Users/Tweets	Average RT			
Housing Access	974.9	32%	326.2	0.33	1.13			
Rent Control	574.9	32%	192.1	0.33	1.17			
Housing Supply	289.1	59%	77.2	0.27	0.55			
Total	1,839	36%	469	0.25	1.05			

MSA Name	# of Tweets	% original tweets	# unique users	users/Tweets	Average RT	Rent Control	Housing Access	Housing Supply
New York	150.6	39%	31.2	0.21	1.64	41.6	88.5	20.5
Los Angeles	148.7	37%	36.3	0.24	1.39	66.3	63.0	19.4
San Francisco	133.1	45%	19.7	0.15	2.10	41.4	43.6	48.2
Washington	127.3	41%	23.2	0.18	3.07	22.6	86.5	18.3
Chicago	77.7	33%	19.5	0.25	1.73	24.7	47.3	5.7
Boston	61.2	36%	12.4	0.20	0.88	14.5	33.6	13.0
Seattle	57	37%	11.7	0.20	1.14	19.8	24.0	13.2
Portland	36.3	36%	7.5	0.21	0.76	11.9	16.6	7.8
Philadelphia	35.2	38%	9.1	0.26	0.88	6.5	22.7	6.0
Atlanta	31	32%	10.7	0.34	0.45	6.7	22.0	2.2
Dallas	26.5	29%	9.2	0.35	0.58	5.4	19.3	1.7
San Diego	26.2	35%	6.6	0.25	0.39	8.9	11.8	5.4
Houston	23.8	28%	9.4	0.39	0.84	5.1	17.4	1.3
Austin	23.2	35%	6.5	0.28	0.49	4.7	14.3	4.2
Sacramento	23	42%	3.7	0.16	0.50	11	8.3	3.8
Minneapolis	22.8	38%	5.5	0.24	0.91	.1	14.0	4.7
Baltimore	21	36%	5.0	0.24	1.25	2.6	16.1	2.3
San Jose	15.5	49%	3.2	0.20	0.31	5.6	5.9	4.0
Phoenix	14.9	29%	5.1	0.34	0.19	3.2	10.7	1.0
Denver	14.9	34%	4.8	0.32	0.23	3.2	9.2	2.5
Total	1,070	41%	192.0	0.22	1.42	310.1	574.9	185.2