

"Don't Destroy Our Neighborhood": Neighborhood Imaginaries and the Politics of Upzoning
/
Displacement through Development: Spatial and Temporal Dynamics of Residential Eviction
and Capital Investment

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Abstract

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These papers examine different facets of urban land use change in the Seattle region, exploring both the causes and consequences of specific development patterns. The first paper utilizes Natural Language Processing techniques on public comment data to reveal patterns of support and opposition toward residential densification across different neighborhoods in Seattle. It finds that opposition to land use reform was often conveyed through narratives of preserving neighborhood character in whiter and wealthier neighborhoods, while comments from other neighborhoods were generally more supportive and focused more on issues of affordability and equity. The second paper examines the relationship between building permit activity and residential evictions in Seattle and Tacoma, pointing to a robust pattern in which evictions immediately precede demolition and remodeling activity. Additionally, permit activity in the surrounding neighborhood is associated with an increased risk of eviction, pointing to the role of broader neighborhood change in patterns of residential displacement.

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Chapter 1: “Don’t Destroy Our Neighborhood”: Neighborhood Imaginaries and the Politics of Upzoning

1.0 Abstract

The intensity of conflicts over land use reform in cities throughout the United States points to the importance of local land use regulation in contemporary urban life. However, there are still many gaps in our understanding of the politics of land use, particularly with respect to how, where, and why particular attitudes toward land use reform emerge. While a prominent political discourse has emerged around activists classified as NIMBY or YIMBY, this framing elides the complexity of these debates and the many issues that can influence attitudes toward proposed reforms. In addition, despite the implicitly place-oriented nature of the phrasing “not in my back yard”, relatively little attention has been paid to the role that place-making and sense of place might play in consolidating these narratives at the neighborhood scale. This paper begins to address these gaps by exploring public comments on a comprehensive land use reform proposal in the city of Seattle, using a hybrid of Natural Language Processing (NLP) and qualitative content analysis to highlight spatial patterns of attitudes towards residential densification and upzoning. It finds that both the volume of comments and the ratio of skepticism to support were higher in neighborhoods with a larger white population. Additionally, it is shown that comments are oriented around a few key issues such as displacement risk, infrastructure capacity, and neighborhood character. All of these themes are employed to support existing neighborhood imaginaries that are tied to perceptions of a neighborhood’s history, social networks, and demographic characteristics. This approach also demonstrates both the promise and limitations of using NLP to analyze land use reform issues: while it can provide a useful tool for analyzing

larger qualitative datasets of public comment data, its current shortcomings mean that it should only be used as an exploratory and inductive tool in conjunction with other analytical techniques.

1.1 Introduction

Recent conflicts have brought land use zoning to the fore of the political conversation in cities throughout the United States, upending decades of precedent and tradition in economically vibrant cities challenged by population growth and tight housing markets. Perhaps the most prominent recent example is the multi-year conflict over SB50, a proposed bill in the California State Legislature that would override low-density municipal zoning regulations in areas near frequent-service transit stops and permit the construction of higher-density residential buildings (Bliss, 2020; Lowrey, 2020; Walker, 2020). Similar conflicts have played out in cities throughout the country over the past several years, producing a range of outcomes. In one of the most sweeping sets of reforms, the city of Minneapolis is currently implementing a citywide ban on single-family zoning, with fourplexes becoming the maximum allowable density in such areas (Schuetz, 2018; Sisson, 2018). In every place where these reforms have been proposed, they have been met with stiff opposition by residents concerned about the potential impacts of the reforms on their quality of life. Understanding and addressing these concerns is key to the successful adoption of reforms that are increasingly regarded by economists and policymakers as a necessary corrective to density restrictions that place additional pressures on already tight housing markets. However, only a handful of studies have been conducted into the discourses employed by supporters and opponents of urban land use reform in the United States, and few have explicitly considered the role of neighborhoods – as both physical spaces and socially constructed places – in shaping the development of those discourses.

This study addresses this gap in the literature by focusing on the conflict around “Mandatory Housing Affordability” (MHA), a component of the City of Seattle’s overarching “Housing Affordability and Livability Agenda” (HALA) policy strategy. MHA consisted of a comprehensive land use reform proposal coupled with affordable housing requirements for developers, intended to increase density and affordable housing supply in 27 designated areas of the city known as “urban villages” (Figure 1.1). While these urban villages – which normally consist of a residential area centered around a frequent-service transit route and/or a commercial hub – had existed as planning areas since the 1990s, the MHA proposal included boundary expansion and densification measures far beyond that of the original urban village strategy. As in other places where such reforms have been attempted, these proposed changes were met with immediate opposition. While this opposition manifested in multiple arenas, including a lawsuit filed in the state courts (Lloyd, 2017), perhaps the most comprehensive accounting of attitudes toward the proposal came in the form of written comments submitted to the city in response to the Draft Environmental Impact Statement (DEIS) process. This paper examines those comments in terms of volume, sentiment, and thematic content, using a combination of automated and manual coding techniques to assess attitudes toward densification and development, and the ways in which those differ across diverse socio-spatial contexts. This paper addresses both theoretical and methodological considerations. Theoretically, what role does the neighborhood, as a social, political, and spatial construction, play in patterns of comment submission, attitudes toward development, and thematic content? Methodologically, how can Natural Language Processing (NLP) techniques be leveraged to reveal these patterns within complex qualitative data such as written public comments?

1.2 Literature Review

1.2.1 Land Use Regulation

For more than a century, land use zoning has played a central role in urban development and has often served to protect the interests of property owners. While the existence of zoning means that the rights of property owners are not truly exclusive in that acceptable land uses are dictated by the state (Blomley, 2004; Pierce, 2010), it has also been used to protect the rights and privileges of certain property owners against perceived threats, particularly in the historic context of racialized anxieties in the United States. In the 1930s, the federal government instituted a system of mortgage risk appraisal in major cities throughout the United States – now known as “redlining” – which designated stable white neighborhoods as “safe” for investment, non-white neighborhoods as “hazardous”, and neighborhoods experiencing demographic transition as being “at risk” (Jackson, 1980; Rothstein, 2017). The widespread use of these racialized and spatially targeted lending practices were linked to fears among white homeowners that demographic change could diminish the value of their homes, motivating a range of exclusionary tactics designed to protect property values by preventing demographic change (Rothstein, 2014). The nexus between neighborhood politics, state authority, property ownership, and race was particularly visible in the context of “restrictive covenants”, with the Federal Housing Administration actively encouraging white neighborhoods to *mandate* that deeds include clauses prohibiting sale to non-white residents (Massey & Denton, 1993; Rothstein, 2014; Sharkey, 2013). These restrictive covenants were enacted through “neighborhood improvement associations”, which were not strictly linked to formal state authority but operated with broad discretion in promoting exclusionary practices.

Although these racially targeted measures were not *explicitly* a form of municipal land use zoning regulations, such zoning has served a similarly exclusionary purpose at various points in US history. Arising at the very beginning of the 20th century, zoning was initially used by municipal governments as a strategy to separate residential and industrial land uses but quickly became an explicit tool of racial discrimination through zoning practices that specifically banned members of certain races from certain neighborhoods (Nelson, 1995; Rothstein, 2017; Shertzer et al., 2016; Silver, 1991). Along with government interventions such as tax breaks and subsidies that provided financial support for white homeownership, zoning was thus a powerful tool through which the state fundamentally shaped racial wealth disparities that persist to this day (Krivo & Kaufman, 2004; Oliver & Shapiro, 1995). While explicitly racialized zoning practices were ostensibly abandoned following the passage of the Fair Housing Act in 1968, government policy has long supported property owners and promoted spatial exclusion through restrictions on residential density (Babcock, 1973; Batchis, 2012; Freund, 2010; Mangin, 2014). Although accomplishing many of the same goals as racial zoning in practice, exclusionary zoning that does not *explicitly* discriminate by race has consistently been upheld in courts (Dreier et al., 2014). From setting minimum lot sizes for new housing to restricting neighborhood housing types to single-family homes, municipalities in the US have an unusually broad discretion to control the demographic and socio-economic composition of neighborhoods (Downs, 1994; Sharkey, 2013). As a consequence, land use zoning has become a dominant reason for the perpetuation of racial segregation in the post-redlining era (Rothwell, 2011).

While health and safety were ostensibly the original justification for the separation of land uses, the protection of the property values has also been an essential component of zoning policies from the start (Fischel, 2004, 2015). Density restrictions effectively limit the supply of

housing by rendering single-family neighborhoods off-limits, leaving poor (and often non-white) residents to seek out more affordable housing in a relatively smaller number of more densely developed neighborhoods (Massey & Rugh, 2017; Rothwell & Massey, 2009, 2010; Whitemore, 2017). At the same time, land use restrictions increase the property values of single-family homes by restricting the supply of housing (Fischel, 1987; Glaeser & Gyourko, 2002, 2018; Quigley & Raphael, 2004, 2005; Quigley & Rosenthal, 2005; Rothwell, 2009), further enhancing a significant form of structural inequality. These restrictions on density therefore have broader implications for housing affordability and access, restricting supply at the regional level and causing housing to “filter up” and become more expensive (Been et al., 2019; Glaeser & Gyourko, 2002; Monkkonen, 2019). Despite these many negative consequences, however, political opposition to reforming these systems plays a key role in maintaining the status quo.

1.2.2 NIMBY

Political opposition oriented around land use reform has long been identified as an important element of urban politics (Agnew, 1978; Dear & Taylor, 1982). This opposition to development and change, frequently characterized by the term “NIMBY” (“Not In My Back Yard”), often responds to specific objectionable land uses such as polluting facilities or services catering to marginalized groups (Dear, 1992; Lake, 1993). Much of the geographic research on NIMBY attitudes towards housing and social services has focused on the tendency of neighborhood residents to oppose the introduction of social difference. Locational conflicts are often found to arise from attempts to preserve the whiteness of a given place and its associated socio-spatial privilege, while maintaining distance from those that could dilute that privilege (Hubbard, 2005; Wilton, 2002). In upper- and middle-class neighborhoods, these conflicts reveal a structural conflict between democracy and equity, in which the interests of existing residents

are balanced with the need for a more equitable distribution of housing (Sally & Tighe, 2015). Reflecting the racialized nature of neighborhood identity, opposition to affordable housing construction is rooted in conceptualizations of race and class and tends to be strongest in wealthier and whiter neighborhoods (Nguyen et al., 2013; Tighe, 2012). In particular, NIMBY conflicts tend to center around issues of property ownership and property values, as homeowners face the threat that the introduction of more housing – particularly lower-income housing – could lead to a decrease in property values (Taylor, 2013; Wassmer & Wahid, 2018). Indeed, opposition often focuses on projects adjacent to single-family homes, rather than those projects adjacent to either multifamily buildings or open spaces (Pendall, 1999), suggesting that the form and function of nearby housing development is more pertinent than broader anti-growth sentiments.

Traditional forms of opposition to development are thus rooted in the particular privileging of homeownership in the US, which has been associated with substantial social and economic benefits ever since it was promoted by the federal government as a tool for strengthening citizenship (McCabe, 2016a; Rothstein, 2017; Vale, 2007), as well as serving as a private-market replacement for the shrinking social safety net (Bratt, 2012; Sherraden & McBride, 2010). Socially, homeownership is regarded as a marker of responsibility and success, while not owning property denotes instability, precarity, and a certain degree of untrustworthiness (Blomley, 2005). It also contributes to a phenomenon that Goetz and Sidney (1994) identify as an “ideology of property”, in which homeowners are seen as beneficial to the fabric of a neighborhood while an increase in the renting population is associated with neighborhood decline. The privileging of homeownership has also created another significant divide between homeowners and others: while housing can provide renters with the physical and

emotional benefits of home, homeowners also receive a financial benefit from their housing (Krueckeberg, 1999). The private ownership of land detaches the all-important use value of housing from its exchange value on the private market (Logan & Molotch, 1987; Madden & Marcuse, 2016). This detachment of use and exchange value transforms homeownership into a significant investment and a wealth-building opportunity, infusing the decision to buy a home with financial advantages such as capital appreciation and tax benefits that extend beyond the use value of the home (Smith, 2008). This provides homeowners with strong incentives to maintain the exchange value of their homes through social and political action.

The best-known theoretical formulation of this dynamic is the “homevoter hypothesis”, which suggests that homeowners respond to these incentives via direct political action. According to the homevoter hypothesis, homeowners are an important bloc in local elections that supports projects and candidates that increase property values and opposes projects and candidates that may decrease those values (Fischel, 2001, 2015). Recent evidence supports this hypothesis, showing that homeowners tend to be over-represented in municipal politics, turning out in higher numbers to both public meetings and to the ballot box and driving a politics centered on homeownership (Einstein, Palmer, et al., 2019; Hall & Yoder, 2018; Ornstein, 2019; Yoder, 2019). Homevoter behavior in municipal elections has been identified in a range of urban contexts both in general and in response to specific large and disruptive projects such as airports and sports stadiums (Ahlfeldt & Maennig, 2015; Been et al., 2014; Dehring et al., 2008; McGregor & Spicer, 2016). In addition, homeowners that are dissatisfied with current conditions are far more likely to vote, meaning that any reforms perceived to have a potentially negative effect on property values are likely to generate stronger responses in voting behavior (Holian, 2011).

Homevoters respond not just to threats to their individual properties but also to actions that could potentially diminish property values by changing the character of their neighborhoods. This reflects the broader reality that property values are driven not only by a property's individual characteristics but also by its *surroundings*. As Logan and Molotch (1987, p. 18) note, the value of urban property derives in part from its “idiosyncratic locational benefits” that are linked to perceived characteristics of the surrounding neighborhood. Largely drawing from existing empirical evidence, Monkkonen (2016) outlines several specific reasons for opposition to development and densification that are tied to the neighborhood scale, including 1) concerns about pressure on existing infrastructure, 2) concerns over exposure to other types of people, and 3) vague evocations of “neighborhood character” that speak to aesthetic, social, or cultural concerns. These concerns tend to arise in particular neighborhoods, with Whittemore and BenDor (2019) finding that residents of single-family neighborhoods and older residents are significantly associated with lower rates of approval for high-density projects. However, while these findings largely affirm existing understandings of NIMBYism, opposition to new development is not isolated to just one group and can transcend social, economic, and political differences.

1.2.3 Complicating NIMBY

Despite the academic and policy focus on opposition arising from single-family homeowners, it is important to recognize the diversity underlying this perspective. Skepticism of densification extends across political divides: while there exists substantial support for a denser built environment in the abstract amongst non-conservative urban households (Lewis & Baldassare, 2010), individuals and cities on the left side of the American political spectrum are also associated with opposition to housing development and densification (Kahn, 2011; Marble

& Nall, 2018; Whittemore & BenDor, 2019). In addition, homeowners and renters *alike* are more likely to express opposition to housing development when it occurs in direct proximity to their residence (Hankinson, 2017, 2018). Along with the arguments outlined by Monkkonen (2016), skepticism toward new development among other groups such as renters is often based in part on the concern that new housing development will result in displacement of existing low-income housing without increasing the supply of affordable housing in the short term (Been, 2017; Been et al., 2019; Hankinson, 2018; Zuk & Chapple, 2016). While research on renters' opposition to new development has thus far been framed as "NIMBY" and placed in the same category as homeowners' opposition, there is clearly an important distinction between the phenomena.

Several critiques of NIMBY as an analytical frame pick up on this issue, highlighting its judgmental implication that those resisting a proposed development are necessarily opponents of the greater good and the fact that it frames only *some* of this opposition as bad. Burningham (2000), for example, argues that Bullard (1993) "labels the opposition of white communities as NIMBY (i.e. illegitimate and selfish) while he sees the opposition of black communities to the same proposals as an exciting and positive development... to label one NIMBY and the other as not NIMBY is essentially a value judgement" (p. 60). Other scholars challenge the NIMBY frame because it implicitly frames planners as rational actors attempting to placate irrational and self-interested residents, cementing problematic power structures that constrain local autonomy and support the interests of capital (Gibson, 2005; Lake, 1993). Wolsink (2006) questions the use of NIMBY in scholarly research altogether, proposing that the concept lacks coherence and fails to acknowledge the diverse causes and consequences of locational conflicts. McElroy and Szeto (2017), meanwhile, critique the use of both NIMBY *and* YIMBY as a discursively constructed false dichotomy, arguing that both resistance to land use change *and* support for market-driven

housing development are tied to the dispossessions of racial capitalism. Perhaps as a consequence of these complications, the NIMBY frame has largely been abandoned in academic disciplines such as geography (DeVerteuil, 2013). While these arguments bring up legitimate concerns and challenge overly simplistic notions of those opposed to development, I argue that NIMBY can still provide a useful framework *if* it is directly connected to a politics of place.

While there are clear distinctions in the reasons that homeowners and renters oppose development, there is an important underlying continuity. In the context of environmental NIMBY responses to the development of renewable energy infrastructure in Europe, Devine-Wright (2009, 2011) reframes the conversation about NIMBYism by focusing on opposition as a form of “place-protective action” undertaken by residents. Devine-Wright recommends that such developments be presented to residents as enhancing rather than undermining their existing understandings of place, which highlights a key linkage between multiple forms of opposition. Homeowners, renters, and environmentalists opposed to development may have different ideological orientations and rhetorical justifications, but all possess the same goal of preserving a particular social, economic, and physical configuration of space. In an urban setting, these configurations are often conceptualized at the neighborhood scale, which makes the neighborhood a key site for interpreting the politics of land use reform.

1.2.4 Neighborhood Place-Making

Despite its extended history as a central focus of urban social research, the “neighborhood” has long been a contested concept without a clear and universal definition. Unlike other political scales such as the “city” or the “nation-state”, neighborhoods cannot be mapped to structures of formal political authority and instead occupy a nebulous “meso-urban” scale between the more clearly defined scales of the municipal government on one hand, and the

household or “home” on the other (Williams & Pierce, 2017). The neighborhood is conceptually vague but immediately recognizable, with scholars variously describing it as “a term that is hard to define precisely, but everyone knows it when they see it” (Galster, 2001, p. 2111), “known, if not understood” (Chaskin, 1997, p. 523), and “a physical and social unit that I am vaguely aware of as different from adjoining areas” (Tuan, 1977, p. 171). These statements reflect an important fact about the neighborhood scale: while neighborhood boundaries are sometimes codified or recognized by municipal governments, they are more often defined by social imaginaries of belonging than by formal political, economic, or legal definitions (Campbell et al., 2009). Neighborhoods operate as sites of identity formation, contributing to residents’ understandings of themselves and their neighborhood community.

It is important to clarify that my use of the term “neighborhood community” refers specifically to the social networks resulting from identification with a given neighborhood, fully acknowledging that the term “community” can also refer to social networks that are “placeless” and not spatially linked (Talen, 2000; Wellman & Leighton, 1979). Even in a world increasingly interpreted as “flat”, people continue to inhabit and form attachments to neighborhood spaces (Sampson, 2012). The concept of a neighborhood community is powerful because it acknowledges the fact that many neighborhoods are based on an *ideal* of community – a specific social imaginary of how residents within the neighborhood should look and act (Clarke, 2005). While neighborhoods are rarely granted political authority through the state, they *become* political through “place-making” activities that maintain or challenge these existing social imaginaries (Martin, 2003a, 2003b). As Elwood et al. (2015) describe, neighborhood place-making explicitly refers to “activities through which residents work to produce the neighborhood they want, such as participating in community organization or initiatives, interacting with their

neighbors, and supporting or opposing particular changes in the neighborhood” (p. 123). Thus, the act of supporting or opposing proposed land use reforms taking place within one’s neighborhood is inherently political and can have a political impact.

In highly differentiated urban landscapes, the social imaginaries of neighborhood communities reify the boundaries between spatially segregated communities. Neighborhoods can serve as a focal point for urban residents’ constructions of their own group identity, operating as “sites of class identity formation” (Elwood et al., 2015, p. 139). By living within communities composed of similarly identified people, residents are able to perceive their race and class status as normal and limit their potential contact with social others by eliminating potential “contact zones” (Lawson & Elwood, 2014; Valentine, 2008). These imaginaries are closely tied to the built environment, with early research on neighborhood activism observing (uncritically) that activism manifested more strongly in areas exhibiting normative ideals of a neighborhood such as renovated housing, landscaping, and zoning (Haeberle, 1987). This sense of identification with a neighborhood is strongest among local activists – those residents playing the most active role in shaping both the social imaginaries and the built environments of their neighborhoods (Smith, 1984, 1985). Those activists are frequently homeowners rather than renters, which means that the ideal of neighborhood communities pursued through neighborhood activism tends to represent the normative ideal of middle- and upper-class residents who are more likely to own their homes (Cox, 1982, 1983). In addition, affluent areas tend to have more unified and effective community organizations, which makes it easier for them to advocate for their specific interests (Logan & Molotch, 1987, p. 135). However, McCabe (2013, 2016b) finds that while homeowners may be more likely to vote, this largely arises from their length of tenure in a particular location rather than the type of tenure per se. While neighborhood and community are

distinct concepts, the “neighborhood communities” in which the two overlap represent a nexus of power for residents looking to reinforce normative understandings of place.

Particularly when institutionalized through extended political action and mediated through local organizations, neighborhoods can be spaces of social organization through which residents materially impact urban policy (Purcell, 1997). While politically-minded neighborhood organizations may possess varying degrees of formality, ranging from voluntary neighborhood associations to Homeowners Associations (HOAs), they all produce a “politics of space” that fundamentally shapes not only the built environment of neighborhood space but also who is able to inhabit that space (Purcell, 2001). Some neighborhood-scale organizations are particularly powerful in the context of devolution, in which political power is increasingly shifted from municipal governments to local “communities” as a result of neoliberal reforms (Elwood, 2002; Herbert, 2005). As the neighborhood has gained relevance as a political scale in the context of neoliberal urban governance, the consequence of this devolution has been an increasingly fragmented urban landscape defined by locational conflict.

As the literature around NIMBYism reflects, neighborhood politics of space often coalesce around specific locational conflicts over land uses that threaten to change a neighborhood’s physical, social, or economic characteristics (often referenced by the catchall phrase “neighborhood character”). Some of the strongest and most cohesive neighborhood communities are those constructed around the notion of a “defended neighborhood” – a space that is seen as requiring protection from external forces (Einstein, Glick, et al., 2019; Forrest & Kearns, 2001; Suttles, 1972). These efforts may increase social cohesion *within* neighborhood communities, but they also motivate resistance to anything that challenges the existing neighborhood imaginary. As a consequence, the residential neighborhood serves as an important

focal point of research into the maintenance *and* contestation of land use regimes (Martin, 2004). While the role of the neighborhood is often ignored or taken for granted in research on land use politics and locational conflict, it can be an organizing framework to understand how and why opposition to land use change arises in multiple socio-spatial contexts. Looking at how residents of different neighborhoods react to a comprehensive rezoning proposal, therefore, provides a perfect opportunity to explore the spatially contingent nature of land use politics.

1.3 Data

On June 8th, 2017, the City of Seattle Office of Planning and Community Development released the Draft Environment Impact Statement (DEIS) for the proposed Mandatory Housing Affordability (MHA) program, which featured substantial revision of the City's zoning maps and Land Use Code (City of Seattle Office of Planning and Community Development, 2017). The DEIS included three action alternatives:

- Alternative 1: the “No Action” alternative in which MHA would not be implemented (though population density would still increase under existing zoning)
- Alternative 2: an action alternative in which MHA requirements would be implemented uniformly across urban villages, without considering existing access to economic opportunity or displacement risk in each individual village
- Alternative 3: an action alternative in which MHA requirements would be implemented to greater or lesser extents based on access to opportunity or displacement risk, as determined by the Seattle 2035 Growth and Equity Analysis

The action alternatives demonstrate different philosophical approaches to accommodating population growth: whereas Alternative 2 proposed that the burden for new housing development should be evenly distributed amongst the urban villages, Alternative 3 was premised on the

notion that areas with higher displacement risk should be shielded from new development.

Ultimately, the Final Environment Impact Statement (FEIS) proposed a compromise between Alternatives 2 and 3, allocating *some* new housing development to neighborhoods with a lower displacement risk.

During the two months following the release of the DEIS – from June 8th through August 7th – comments were submitted via email, online comment form, or in person during an open housing and hearing on June 29th.¹ PDF documents of these comments were obtained from the appendix of the City of Seattle’s MHA Final Environment Impact Statement (FEIS). The written comments consist of 1,795 pages and are accompanied by a document that lists the full name (or placeholder for anonymous submissions) for the person leaving each individual comment. Initial processing entailed the use of the **pdftools** R package to convert this material into analyzable text. A number of pages were scanned documents and thus could not be read automatically. For handwritten comments and scans consisting of a single page, text content was entered manually. For scanned comments consisting of more than one page, images of each page were analyzed using the Tesseract 4.1 Optical Character Recognition (OCR) engine from the **ocr** R package. The text from each page was then further processed, removing extraneous information such as the questions on the online comment form and replacing important multi-word concepts with single words so that they could be identified in subsequent analysis (for example, replacing the phrase “Alternative 1” with “alternative_one”). These pages were then divided by comment submission, using regular expression matching to connect sets of pages with the provided list of commenter names. This process was then manually validated, with intervention necessary for

¹ Public comments also included testimony from 37 members of the public at the open hearing. These comments are excluded from the following analysis because many of those participants also submitted written comments and the semantic and thematic content of the public meeting comments differ substantially from the written comments.

several comments due to the presence of common names and names commonly appeared as non-name words. There were also several cases where the same person clearly submitted multiple comments that were identified separately; in these cases the individual comments were combined into a single comment, reducing the size of the dataset from 552 individual commenters to 541.

1.4 Methods

This paper uses a combination of NLP and manual coding techniques to explore neighborhood-scale differences along three dimensions: 1) the total volume of comments mentioning and/or focusing on each urban village, 2) the distribution of sentiments within each urban village, and 3) the thematic content of comments in each urban village. In each case, the demographic characteristics of the urban villages are used to inform the analysis of these patterns. Several demographic characteristics associated with attitudes toward development are considered: 1) socioeconomic status (represented by median household income), 2) racial composition (represented by the proportion of the population that is white), and 3) tenure composition (represented by the proportion of the population that owns). These characteristics are based on US Census Bureau American Community Survey (ACS) 2013-2017 estimates, representing neighborhood characteristics in the years leading up to the comment process in 2017.²

In order to assess the volume of comments in each urban village, each comment is classified according to whether it mentions an urban village, using regular expression matching with urban village name segments (for example, the presence of the words “Madison” and

² As these estimates are only provided at the census tract level, urban village estimates are based on proportional weighted estimates of all census tracts falling entirely or partially within the urban village borders. For example, if a 60% of an urban village area is covered by one census tract and 40% of the area is covered by another, then estimates from the first tract are weighted as 60% of the total and estimates of the former are weighted as 40% of the total.

“Miller” both count for a mention of the “Madison-Miller” Urban Village. In certain cases, alternative names were also accepted for urban villages where there was clear evidence of a common misspellings, shortenings, or alternative neighborhood name (see Table 1.1). For each comment, the number of times each urban village was mentioned was recorded, and a probable primary urban village was assigned to each comment based on if that urban village is mentioned the most. If multiple urban villages are mentioned the most within a comment, they are all treated as the primary village for that comment. This method is not perfect, particularly as several urban village names refer to streets and common words that may be associated with multiple areas, but it does provide a systematic way to approximate urban village mentions.

The sentiment of these comments toward land use reform is then examined, using both automated and manual sentiment coding techniques. Automated sentiment analysis is conducted using four popular sentiment dictionaries contained in the **tidytext** R Package: “AFINN”, “Bing”, “Loughran”, and “NRC”. In order to test the effectiveness of these sentiment dictionaries on land use data, I also manually code each comment based on the sentiments expressed specifically toward the proposals for densification contained within the DEIS. Following Einstein et al. (2019), these comments are coded based on whether a hint of an opinion can be detected in any direction. If comments refer in any way to density, upzoning, or the possible consequences thereof, they are coded as either “supportive” or “skeptical”. This approach takes an expansive view of skepticism: only comments explicitly supportive of densification proposed in the DEIS – or those suggesting that the DEIS does not go far enough in promoting densification – are coded as supportive, while comments are coded as skeptical if they express reservations about density, even if they propose alternative lesser forms of densification. This decision is made based on a close reading of the comments, which indicates that such proposals

are generally offered along with many of the same arguments against densification. Comments that make recommendations or suggestions without revealing an opinion on density, or those that focus solely on concerns about the DEIS process in terms of comment period length or the lack of individual studies for each neighborhood, are coded as “ambiguous”. These hand codes are then compared to automated sentiment analysis results in order to determine whether any of the popular sentiment dictionaries are adequate for the task of analyzing attitudes toward land use change.

Finally, I explore the thematic content of these comments using topic modeling, an unsupervised machine learning technique that identifies themes based on bundles of words that frequently appear together in the same documents. One of the challenges associated with these comments, relative to other more structured forms of qualitative data such as surveys or public meeting comments, is that their length is not restricted, and many comments touch on a range of different themes. One of the great advantages of the Latent Dirichlet Allocation (LDA) – a popular form of topic model – is that it creates themes based on words that frequently appear together while allowing for the possibility that multiple themes may be present in a single document, assigning each document with a probability that it is associated with any given topic (Blei & Lafferty, 2006; Blei et al., 2003). This method does not provide a perfect encapsulation of the themes present in the corpus of documents, particularly for smaller datasets such as the one in use here, but it can be an effective exploratory tool for understanding what themes exist. Although this technique is optimized to data structured in large corpuses with small documents such as tweets (e.g. Alvarez-Melis & Saveski, 2016; Lim & Buntine, 2014; Paul & Dredze, 2012; Wang et al., 2014), its utility for research in the digital humanities and the social sciences has become increasingly apparent (Leonard, 2014; Meeks & Weingart, 2012; Mützel, 2015;

Young, 2017). This paper uses the Structural Topic Model from the **stm** R Package, a parametric model in which the number of topics is preselected (Roberts et al., 2014). Topic models as a whole are extremely sensitive to input parameters; after multiple iterations of testing, the optimal configuration is found to be a model comprised of 16 topics that uses only the 10% of words identified as being most important to each document.³ In addition, in order to avoid conceptual confusion arising from the different opinions being expressed, modeling is conducted separately on comments coded as skeptical and those coded as supportive. In order to assess the validity of these themes and draw additional conclusions about their meaning, a handful of urban villages with contrasting demographic characteristics and sentiment distributions are then selected for in-depth analysis.

1.5 Results

1.5.1 Comment Volume

The 27 urban villages were mentioned a total of 4,479 times across the corpus, with the most mentions (1,284) for the Madison-Miller Urban Village far outpacing the second-most mentioned urban village (Crown Hill, with 507 mentions). Meanwhile, the least frequently mentioned was the Bitter Lake Urban Village, with only 7 mentions across the entire corpus (Figure 1.2a). Several urban villages were mentioned frequently across multiple comments, including West Seattle Junction (which appeared in 78 comments), Ballard (66), First Hill-Capitol Hill (63), Madison-Miller (61), Wallingford (58), and Crown Hill (57). Again, Bitter Lake was mentioned the least frequently, only appearing in four out of the 541 comments (Figure 1.2b). Finally, there were 60 comments in which West Seattle Junction was also the most

³ These words are determined according to tf-idf (term frequency-inverse document frequency), a statistic that measures the importance of a word in each document (in this case, each public comment) by multiplying the frequency of the term within that document by the inverse frequency of that word across the entire corpus

frequently mentioned, followed by Madison-Miller (52), Crown Hill (40), and Wallingford (34). (Figure 1.2c). On the other hand, 11 of the 27 urban villages were the primary subject of fewer than 5 comments and Bitter Lake was not the primary subject of *any* comment. The fact that the distribution of these comments was not even across these neighborhoods despite their common role in the proposed reforms points to the possibility of neighborhood-specific determinants of participation. The volume of mentions and the number of comments in which an urban village is the primary subject are both associated with the size of the white population, pointing to an important disparity in neighborhood outcomes. The four majority-minority urban villages (Columbia City, North Beacon Hill, Othello, and Rainier Beach) were the most frequently mentioned villages in fewer than 10 comments each, and all four villages that were the primary subject in more than 30 comments (Crown Hill, Madison-Miller, Wallingford, and West Seattle Junction) were at least 80% white.

This demonstrates an important divide in the ways that different neighborhoods engage with land use reform proposals, and reflects that certain groups may face additional barriers to their ability to participate in certain political processes such as public meetings (Einstein et al., 2018). Some comments explicitly make the connection between public participation and structural disadvantage, with a resident of the lower-income South Park neighborhood noting “As a community composed primarily of people of color, non-native English speakers, and families living in poverty, we need more outreach than most. We need more time to study the DEIS to see that it meets the needs of this community” (*Marked Comments G-M*, 2017, p. 20). While submitting public comments does not entail the same level of commitment in time or resources as other types of civic engagement such as public meetings, the public comment process can still produce exclusionary outcomes. Many comments complained about the length

of the comment period and the difficulties associated with reading and responding to the DEIS in a short period of time, and it was clear that neighborhoods with stronger coordination were often able to produce a greater volume of comments. It is therefore important to acknowledge that the comment process itself may have been a barrier to participation for residents of neighborhoods with less coordination and less free time to read the 800+ pages of the DEIS. This impacts every element of this analysis, from the distribution of comments across neighborhoods to the distribution of sentiments within those neighborhoods.

1.5.2 Sentiment Analysis

Parallel manual and automated sentiment analyses reveals the present insufficiency of existing automated processes, necessitating the use of manual coding. The four sentiment dictionaries used in the automated process had a mixed track record relative to the manually coded comments – although three dictionaries had a statistically significant difference in sentiment scores between comments that were manually coded as skeptical or supportive, they successfully identified which comments were in each group at rates ranging from just 27% to 69% (Figure 1.3). These rates are simply too low for reliable analysis, meaning that automated sentiment analysis is not adequate for this corpus. Out of 541 comments, 297 (54%) were *manually* coded as expressing some form of skepticism regarding the proposed reforms, 116 (21.1%) expressed support, and 132 (24%) were coded as ambiguous. This reflects a low rate of explicit support for densification among these comments, particularly given that some of the ambiguous comments focused on technical aspects of the analysis may also have reflected an underlying skepticism about the proposal.

These sentiments were distributed very differently across urban villages, with high levels of support in only a handful of neighborhoods. There were only nine out of the 27 urban villages

in which at least 50% of the comments where they were identified as a primary village were coded as supportive of the proposed reforms. This included only a handful of neighborhoods with higher comment volumes, including the Northgate (90%), First Hill (67%), and Ballard (50%) neighborhoods, and a number of neighborhoods with *low* comment volumes including Columbia City (2 out of 2 comments), Rainier Beach (5 out of 6), Greenwood (2 out of 3), and Aurora (3 out of 5). Although the smaller number of comments from these neighborhoods means that these distributions were not necessarily representative of the *overall* sentiment in the neighborhoods, these comments served as the primary representation of those neighborhoods in the DEIS process and likely informed policy decisions.

Meanwhile, although several of the urban villages with low overall comment volumes also recorded uniform skepticism – Admiral (1 comment), Eastlake (3), and North Beacon Hill (5) – more notable is the high rates of skepticism in the neighborhoods with *high* response volumes, including Madison-Miller (85%), West Seattle Junction (83%), and Crown Hill (72%). This suggests that skepticism may have been a galvanizing force in those neighborhoods, contributing substantially to the overall rate of response. Demographic characteristics are a strong predictor of these sentiments, with skeptical comments associated with urban village populations that were on average 5.7 percentage points whiter, had a 6.8 percentage point higher homeownership rate, and had a median household income approximately \$7,300 higher than for supportive comments. This reflects the volume of skeptical comments arising from whiter and wealthier neighborhoods, but also points to the relatively high levels of support in many neighborhoods with higher levels of racial diversity and lower socioeconomic status (Table 1.2). In order to understand possible reasons for these patterns, however, it is important to understand the reasons underlying these sentiments of skepticism and support.

1.5.3 Thematic Analysis

Modelling the topics present in each of the sentiment categories reveal a number of clear themes that emerge from each of the primary camps about the central issues associated with the proposed reforms. A number of prominent themes emerged from this analysis that map closely to Monkkonen's (2016) categories: 1) concerns about housing, 2) concerns about infrastructure capacity, and 3) concerns about neighborhood "character". Within the skeptical comments, concerns about housing were primarily focused around issues of affordability and displacement, including words such as "affordable", "displacement", "income", and "developers" (i.e. Figure 1.5, Topic 9). Concerns about infrastructure capacity also take on a number of dimensions: the capacity of schools (Topic 6), stormwater systems (Topics 5 and 14), and transportation infrastructure (Topics 5 and 10) are all prominent concerns. The most prominent overarching theme, however, was neighborhood "character" (also "charm", "livability"). Concerns about neighborhood character were particularly tied to the ideas of loss and preservation, with a particular focus on the environment (Topic 7), historic preservation (Topics 4 and 16), and potential community impacts on health (Topic 2). A number of topics focused on more technical aspects of the proposal, including "design", "process", and "study" (Topics 8 and 14)

Topics generated from comments coded as supportive of the proposed reforms were even more likely to be oriented around technical concepts, reflecting the large number of developers and property owners that submitted comments in favor of the reforms. However, similar concerns about housing, infrastructure, and character also came into play. Concerns about equity, displacement, and development were prominent in the supportive comments (Figure 1.6, Topics 7 and 13). A more diverse array of transportation infrastructure was also featured prominently with themes related to commercial corridors, parking, transit, and bike infrastructure (Topics 1,

4, 6). Concerns about character, meanwhile, were mainly focused on community and neighborhood quality (Topic 10) and building aesthetics in terms of height and interaction with the streetscape (Topic 12). These parallels between the skeptical and supportive comments indicate that both groups had similar concerns but were driven by very different approaches to those concerns. Rather than seeing densification as harmful to equity, transportation infrastructure, and character, the supportive comments largely focused on the potential ways in which it could be beneficial.

It is instructive to reflect on which concepts are largely absent from these topics: although displacement and affordability are mentioned in several topics, they are largely associated with technical words rather than with the process of displacement or the people being affected. Words related to race do not appear at all in the skeptical themes, although the word “color” (referring to people of color) does appear in a supportive topic connected to displacement and development (Figure 1.6, Topic 7). This is not to imply that race is never discussed across the comments, but points to the fact that it is not emphasized in the same way as other issues such as historic preservation, infrastructure, and environmental protection, particularly among the skeptical comments. Another glaring omission is the lack of any references to homelessness, despite the clear connections between homelessness and issues of housing affordability and livability. These omissions point to the underlying tendency of these public comments to consist of critiques that are either extremely technical (focusing on specific zoning regulations, impact, and mitigation), or extremely rooted in visible concerns tied to livability and infrastructure. The public comment process – at least in this context – is therefore extremely limited in terms of the insights it can provide, particularly if the goal of the planning process is to solicit input from all facets of the community. It is important to understand not only the dominant narratives that emerged from the

public comment process, but also how and why those narratives are distributed among neighborhoods. Therefore, I now turn to a brief examination of several neighborhoods that contrast in terms of demographic composition and levels of support for the proposed reforms, in an effort to explore how those themes identified through topic modeling emerge across different types of neighborhoods. In each case, the most probable words from the topic most strongly associated with each comment are also shown in a word cloud that illustrates the thematic focus within the neighborhood (Figure 1.7).

In largely white neighborhoods with high levels of skepticism about the proposed reforms, the focus often tended to be on issues of neighborhood character, livability, and infrastructure. In the West Seattle Junction neighborhood, where the population is 85% white and the median income is approximately \$85,000, the highest-probability topic for more than half of the comments was one that focused broadly on issues of loss, particularly with respect to neighborhood character and infrastructure (Figure 1.5, Topic 19; Figure 7a). Upon closer inspection, the overwhelming predominance of this theme can be attributed to widespread use of a form letter that made reference to numerous perceived failings of the city's proposal with respect to its analysis, its outreach, and its perceived effects on the neighborhood environment, infrastructure, and aesthetics (Figure 1.8). Both the form letter and other comments from the neighborhood present the coherent neighborhood imaginary of a desirable single-family neighborhood under threat from development. In one comment, the neighborhood is described as a "single-family enclave" that is "rapidly losing its charm and character" (*Marked Comments A-F*, 2017, p. 601). Blame is laid at the feet of both city hall and developers, with comments arguing that the proposal both demonstrated the "City of Seattle's failure to honor the West Seattle Junction neighborhood plan" (*Marked Comments A-F*, 2017, p. 391) and that "once you

change the zoning developers will buy and tear down the little houses thereby displacing lower income residents of neighborhoods” (*Marked Comments N-Z*, 2017, p. 617).

An ideology of homeownership is apparent in multiple comments from this neighborhood. The construction of multifamily structures is tied to the “destruction” of the neighborhood, with one comment stating “Don't destroy our neighborhood. We have already added enough high rise housing. No need to mess with the single family homes that support our urban core” (*Marked Comments N-Z*, 2017, p. 179). Another comment highlights a subtext of densification concerns – the question of who *deserves* to live in the neighborhood:

“Do you truly believe someone living in a beautiful quite residential neighborhood wants to stay when a 6 unit 35 foot tall condo complex is built next to them? You know they will leave their family home and that is what you want. I have worked so very hard for my home. Working countless days and many hours. Now it's to be taking(sic) away (by making my neighborhood ugly) and given to someone who may have but in half the work I have. That's just not fair(sic)... I'm sorry that the collage(sic) kid 2 years out of school can't afford a \$600,000 house. Neither could I when I graduated. It took me 13 years before I got into a house” (*Marked Comments G-M*, 2017, p. 447)

These comments, along with seemingly more innocuous references to neighborhood charm and character, align with Goetz and Sidney's (1994) description of the “ideology of property” and promote an exclusionary neighborhood imaginary in which multifamily housing is undesirable and actively destructive because it houses those that don't deserve to live in the neighborhood. There are clear class implications to the opposition to multifamily housing, as another comment highlights: “this type of housing should be built in cheaper areas *needing the gentrification*” (*Marked Comments G-M*, 2017, p. 291, emphasis added). While many comments focus on maintaining the neighborhood's “character” with respect to aesthetic, environmental, and

infrastructural considerations, they are all premised on opposition to a particular form of housing seen as harmful to the neighborhood's social imaginary.

In a context of relative disadvantage, meanwhile, skepticism toward development takes on a very different set of meanings. The South Park neighborhood, where the population is 53% white and the median household income is only \$35,000, is located at the edge of the city on a floodplain near an industrial zone. That geographic context is a prominent feature of many comments, with references to its location in a valley and the presence of industrial land uses (Figure 1.7b). Other words in the topic analysis highlight themes such as environment and infrastructure seen in West Seattle Junction, but also highlight other concerns such as the degree of community engagement and the pollution risks connected to the neighborhood's geography. Whereas the imaginary in West Seattle Junction was that of a *desirable* single-family neighborhood under threat, the imaginary in South Park seems to be closer to that of a *marginalized* community under threat: "We are a multi cultural very hard working neighborhood, I expect the goal of HALA is to erases this diversity to make room for all this rich white yuppies with such excellent jobs" (*Marked Comments A-F*, 2017, p. 565).

While West Seattle Junction comments were mainly focused on the maintenance of single-family neighborhoods out of a desire to maintain currently desirable areas, comments in South Park tend to focus on how single-family homes provided a buffer against economic and environment injustices: "Increase single family zoning and protect it which will save trees and keep the green space... The city needs to protect the very few homes that are left. Creating more apartments only keeps people in poverty and does not allow them to own anything" (*Marked Comments G-M*, 2017, p. 461). Rather than focusing on who *deserves* to live in the neighborhood or own a home, this perspective advocates *greater* access to single-family homes

to address economic and environmental challenges. Mirroring the West Seattle Junction comment about being forced to move by nearby construction, another comment expresses that same fear in a very different way: “My house is my savings and my safety net. My house will become economically obsolete on property no longer zoned single family and surrounded by tall buildings... My home will no longer be desirable to families or buyers” (*Marked Comments N-Z*, 2017, p. 212). While the concerns voiced in West Seattle Junction were primarily aesthetic (e.g. referring to “ugly” buildings), the concern expressed in South Park is much more acute: that such construction could increase their economic vulnerability. While the imaginary in South Park is thus also linked to homeownership, that takes on a very different light in a context of disadvantage.

Many supportive comments, on the other hand, challenge the ideology of homeownership altogether and focus on the benefits that densification can provide for housing affordability and environmental quality. One comment from the First Hill–Capitol Hill neighborhood, where the population was 70% white and 2/3 of comments were supportive, calls for the city to “increase density with renters, not homeowners, in mind. Realistically speaking, we were all renters first before taking on a mortgage. Currently language points to protecting the comfort and health of single family zoning without thinking about renter’s own rights to comfort and health... Put renters first” (*Marked Comments G-M*, 2017, p. 354). Another comment calls up a vision of livability that stands in stark contrast to that presented in the West Seattle Junction comments: “We have an opportunity to create new affordable and market rate housing in what is one of the most vibrant and walkable neighborhoods in the country. We'll also reduce per capita carbon emissions and be a model for progressive, inclusive urbanism” (*Marked Comments G-M*, 2017, p. 54). Neighborhood characteristics play a major role in this difference: whereas homeowners

made up 52% of the population in West Seattle Junction and 40% in South Park, they made up only around 19% in First Hill – Capitol Hill. The tenure composition of the neighborhood thus has a significant impact on the neighborhood imaginary that is constructed. The themes concentrated in the neighborhood, meanwhile, point to the greater importance of non-residential neighborhood organizations and institutions in the neighborhood, including terms such as “director”, “associate”, “institution”, and “executive” (Figure 1.7c). The narrative of the First Hill – Capitol Hill neighborhood presented in these comments, unlike in West Seattle Junction or South Park, is shaped heavily by organizations and developers located in the neighborhood, providing an alternative perspective not seen in neighborhoods dominated by residential land uses. One organization – Photographic Center Northwest – was the source of multiple comments, with calls from various members to allow the organization to redevelop its property in order to expand its usable space and develop affordable housing. Thus, the neighborhood imaginary on display in the First Hill – Capitol Hill comments is heavily influenced by a desire for greater development, driven in small part by renters and environmentalists and in large part by developers and local institutions.

Support for the proposed reforms in the more diverse neighborhood of Rainier Beach, on the other hand, follows a somewhat different logic, focusing on how the proposed changes are connected to issues of development, displacement risk, and community. Whereas these concepts were often associated with the *negative* aspects of land use reform in other neighborhoods, however, they are used as a justification for *greater* development in the context of Rainier Beach, which was only 30% white and had a median household income of around \$55,000. A comment submitted by the Rainier Beach Action Coalition (RBAC), a “neighborhood-based coalition that seeks to build a connected, sustainable and equitable

community” in the Rainier Beach neighborhood, is illustrative in this respect: “Rainier Beach is the neighborhood with the least housing development over the last 20 years and yet displacement has been happening. How is a continued policy of limiting development preventing further displacement? How is this lack of potential private investment equitable?” (*Marked Comments N-Z*, 2017, p. 163). While the presentation of alternatives within the DEIS are implicitly rooted in the assumption that development will contribute directly to displacement, the RBAC challenges this framing. Arguing that displacement is happening despite a lack of development activity in the neighborhood, the RBAC points out the inequity in preventing private capital from flowing to a neighborhood that has historically experienced disinvestment. Other comments in which Rainier Beach was mentioned made reference to the “Rainier Beach Neighborhood Plan”, which called for significant densification around the neighborhood’s light rail station (*Marked Comments N-Z*, 2017, p. 478). These sentiments were echoed not only in Rainier Beach, which had the second-largest nonwhite population of any urban village, but also in the nearby Othello Urban Village, which had the *largest* nonwhite population. This illustrates a more complex picture of attitudes toward development in diverse neighborhoods with a legacy of disinvestment, where a lack of new development capital is actually seen as counterproductive for the community. This pattern is certainly not universal, as widespread skepticism in other low-income and less white neighborhoods like South Park and North Beacon Hill reflects, but it suggests that marginalized communities may be more open to land use reform than fears about displacement risk might suggest.

1.6 Conclusions

These findings highlight a number of important divisions within the reactions to proposed land use reform in Seattle, challenging an overly simplistic NIMBY/YIMBY interpretive

framework and highlighting both the differences and the similarities in these perspectives that emerge at the neighborhood scale. The first notable finding is that both the volume and sentiment of comments differ substantially by neighborhood, with some neighborhoods represented in dozens of comments while others are barely mentioned at all. These patterns are linked with neighborhood demographic composition, but are also partially contingent on the presence of coordinating organizations or individuals. In West Seattle Junction and South Park, for example, multiple comments consisted of form letters presenting a specific narrative about the proposal. While the origin of the form letters in West Seattle Junction is obscure, many of the comments submitted in South Park appear to have been coordinated by a single individual. A similar phenomenon occurred in other neighborhoods with high comment volumes such as Madison-Miller, where an organization called “Madison-Miller Park Community Group” was mentioned by name in 30 individual comments that made reference to a comprehensive proposal to increase allowable density within the neighborhood *without* adjusting allowable building heights.

Neighborhood organizations was also important even in neighborhoods with low comment volume like Rainier Beach, where the Rainier Beach Action Coalition served as a representative voice of at least some aspects of the community. Organizations in some neighborhoods took this even further, with the Beacon Hill Council in the North Beacon Hill Urban Village conducting a survey of 1,117 people and including the survey results and the organization’s own response as a single comment to the city (*Marked Comments G-M*, 2017, p. 366). Each of these cases is a perfect example of neighborhood place-making: coordinated activity in which neighborhood residents work to produce and disseminate a particular understanding of their neighborhood both within and outside of the neighborhood. These understandings are never universal, as each of these neighborhoods produced responses that did

not originate from these common sources. Nevertheless, their preponderance certainly succeeds in making their particular viewpoints appear as the *dominant* narrative in the political conversation.

Both neighborhood demographics and coordination also had an effect on the distribution of sentiments within each neighborhood, with coordination seeming to amplify existing sentiments. In West Seattle Junction and South Park, skepticism and concern pervaded comments that included the respective form letters as well as those that did not, and many of the same concerns were voiced regardless. The most significant contributor to these sentiments was the underlying neighborhood imaginary: in the largely skeptical neighborhoods examined here, that imaginary was one of a neighborhood under existential threat – whether to its “charm” and “character” (in the case of West Seattle Junction) or to the environmental quality and economic livelihood of its residents (South Park). In the supportive neighborhoods, the narrative was either one of enthusiastic urbanism (First Hill – Capitol Hill) or a fervent desire to reverse decades of disinvestment by *encouraging* development in a historically disadvantaged area (Rainier Beach). These findings highlight the complexity of disputes over land use reform, demonstrating that support and opposition can arise in a variety of different neighborhoods depending on the way in which those neighborhoods are perceived and constructed by residents.

This paper also provides insights into new strategies for analyzing data on attitudes toward land use reform, using a hybrid of traditional qualitative hand-coding techniques and automated NLP techniques in order to systematically assess the distribution and content of non-standardized comments. From a methodological perspective, there are a number of innovations that could further improve this approach going forward, by shifting more of the analytical burden onto computational processes while still allowing for user input. One clear example of this is in

the coding of sentiments toward land use: the process was conducted manually for this analysis out of necessity, given the absence of sentiment dictionaries well-suited to land use topics. Automatic sentiment analysis would significantly streamline this process and allow for the analysis of much larger datasets, but this would require a dictionary of words clearly associated with particular sentiments toward land use issues. These hurdles can be overcome through access to more systematized body of data through which the words associated with each sentiment can be clearly defined, and this preliminary analysis demonstrates the promise of such an approach.

Another example is the customization of the topic modelling process, which in the context of this analysis consists entirely of adjusting the desired number of topics and the significance threshold for words. The use of topic modeling in this analysis is limited by the fact that multiple theoretically distinct themes are often mentioned within the same comment and are interspersed with various technical phrases. While filtering out the less relevant words in each document dramatically improved the performance of the model, the topics were not thematically coherent enough to perform a systematic analysis across all neighborhoods and required validation by close reading of the comments themselves. However, more sophisticated topic modeling approaches exist that could provide this approach with greater analytical power. Semi-supervised topic models, which permit the inclusion of pre-defined topics and terms as parameters by the user, allow the topic modeling process to be shaped more intentionally and can produce topics that are more coherent (e.g. Li et al., 2016). For example, the word “displacement” and “risk” are obviously attached to an important theme throughout the comments; if those terms could be entered as priors into the model, it may produce a more coherent theme centered around displacement. Another possibility is interactive topic modeling

(Hu et al., 2014), which encodes correlations between different words into a topic model (such as “displacement” and “affordability”), in order to ensure that topics cohere around those words.

Ultimately, this analysis only begins to highlight the insights that could be gained from focusing more attention on public comment data with respect to land use reform. Combining existing understandings of attitudes toward land use reform with a conceptual framework that prioritizes the neighborhood scale allows for a more fine-grained understanding of how, why, and where different narratives emerge. In the four neighborhoods examined through topic analysis, it becomes immediately evident that reasons for support and opposition are complex, multifaceted, and heavily dependent on both socio-spatial context and the presence of organizations and individuals engaged in place-making practices. A larger dataset and greater variation between neighborhood spaces could lend further insights that have wide-ranging implications for both geographic theory and urban policy. One key question is whether these findings can be applied in contexts outside of Seattle, which is far from the only city to have experienced such a reform. Similar land use reform processes are occurring in cities throughout the United States, and similar bodies of comment data are being generated in each case; in Minneapolis, the planning office received *more than 11,000* comments in response to their proposed reforms (Sisson, 2018). In order to analyze a dataset of that size, further progress in automating these types of processes such as sentiment analysis and thematic analysis is absolutely essential. Such an effort would provide scholars and policymakers with a richer and more comprehensive understanding of how opposition and support for land use reform are constituted, and how the construction of imaginaries at the neighborhood scale feeds into those perspectives.

Chapter 1 Appendix

Table 1.1: Alternative names for urban villages

Official Name	Alternatives		
23 rd & Union – Jackson	23 rd & Union	Jackson	
Aurora – Licton Springs	Aurora	Licton Springs	
Crown Hill	CHUV		
First Hill – Capitol Hill	First Hill	Capitol Hill	Capital Hill
Greenwood – Phinney Ridge	Greenwood	Phinney Ridge	
Madison – Miller	Madison	Miller	
North Beacon Hill	Beacon Hill		
North Rainier	Mount Baker	Mt Baker	
University District	U District		
West Seattle Junction	Junction (if not “Morgan Junction”)		
Westwood – Highland Park	Westwood	Highland Park	

Table 1.2: Summary of demographic characteristics and number of comments in each sentiment category by urban village, with neighborhoods used for manual thematic analysis in bold.

Name	% White	Med. Inc.	% Owner	Total	Supportive	Skeptical	Ambiguous
23rd & Union-Jackson	56.06%	\$71,784	38.45%	7	4	1	2
Admiral	90.95%	\$100,674	63.95%	1	0	1	0
Aurora-Licton Springs	73.59%	\$79,184	49.01%	5	3	2	0
Ballard	88.19%	\$84,420	38.97%	16	8	4	4
Bitter Lake	70.90%	\$50,662	40.38%	0	0	0	0
Columbia City	49.72%	\$62,538	50.95%	2	2	0	0
Crown Hill	85.57%	\$101,166	72.89%	36	3	26	7
Eastlake	82.84%	\$98,106	34.44%	3	0	3	0
First Hill-Capitol Hill	70.84%	\$60,125	19.08%	30	20	6	4
Fremont	85.41%	\$89,755	36.32%	8	2	3	3
Green Lake	76.58%	\$70,484	32.54%	5	1	3	1
Greenwood-Phinney Ridge	84.16%	\$87,454	53.04%	3	2	0	1
Lake City	66.37%	\$54,708	44.53%	5	2	3	0
Madison-Miller	80.90%	\$81,217	37.06%	53	6	45	2
Morgan Junction	82.13%	\$90,309	64.77%	15	2	12	1
North Rainier	53.24%	\$80,960	57.83%	7	2	5	0
North Beacon Hill	47.45%	\$68,405	44.02%	5	0	5	0
Northgate	69.91%	\$54,459	35.10%	10	9	1	0
Othello	26.79%	\$38,548	45.21%	9	5	3	1
Queen Anne	87.65%	\$94,584	38.78%	12	2	6	4
Rainier Beach	30.31%	\$55,309	54.92%	6	5	1	0
Roosevelt	80.42%	\$80,938	44.82%	27	7	19	1
South Park	53.36%	\$35,156	39.71%	22	0	14	8
University District	56.04%	\$27,893	9.83%	11	1	9	1
Wallingford	86.67%	\$85,739	34.93%	38	11	19	8
West Seattle Junction	84.69%	\$84,558	51.88%	60	5	50	5
Westwood-Highland Park	59.10%	\$52,747	46.49%	4	1	2	1

Figure 1.1: Map of urban villages and percentage of households with income at or below 60% of Area Median Income according to the 2009-2013 American Community Survey (City of Seattle Office of Planning and Community Development, 2017, p. 3.20)

Exhibit 3.1-11
Percentage of Households with Income at or Below 60% of AMI, 2009-2013 ACS

Urban Centers/Villages

- In MHA Study Area
- Outside MHA Study Area

Percent of Households with Income Below 60% AMI

- 0% - 15%
- 16% - 30%
- 31% - 45%
- 46% - 60%
- 61% - 75%
- > 76%

Source: HUD CHAS (based on ACS Five-Year Estimates, 2009-2013, U.S. Census Bureau); BERK, 2017.

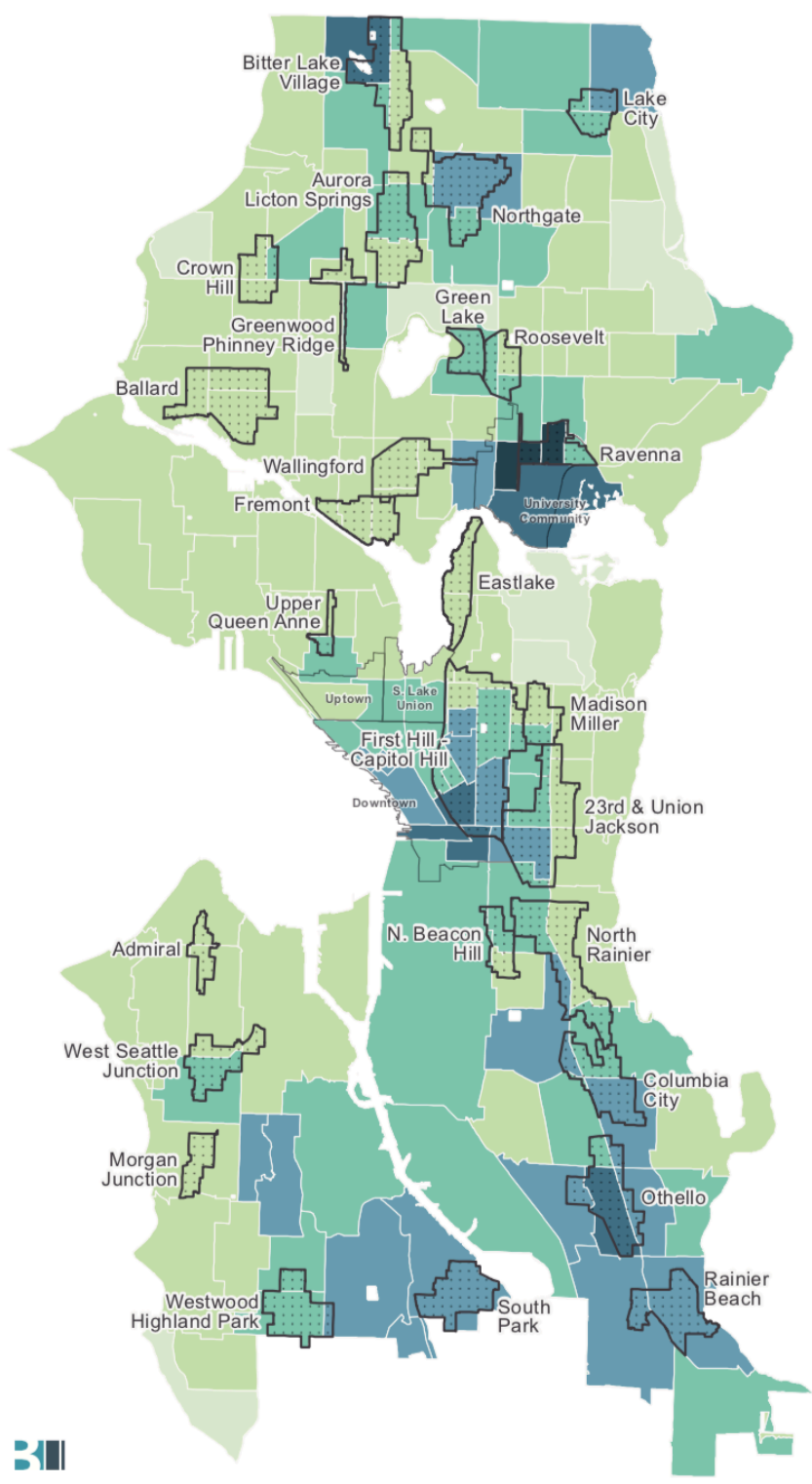


Figure 1.2: Number of mentions for each urban village, according to a) number of times mentioned, b) number of comments in which it was mentioned, and c) number of comments where it was the primary subject

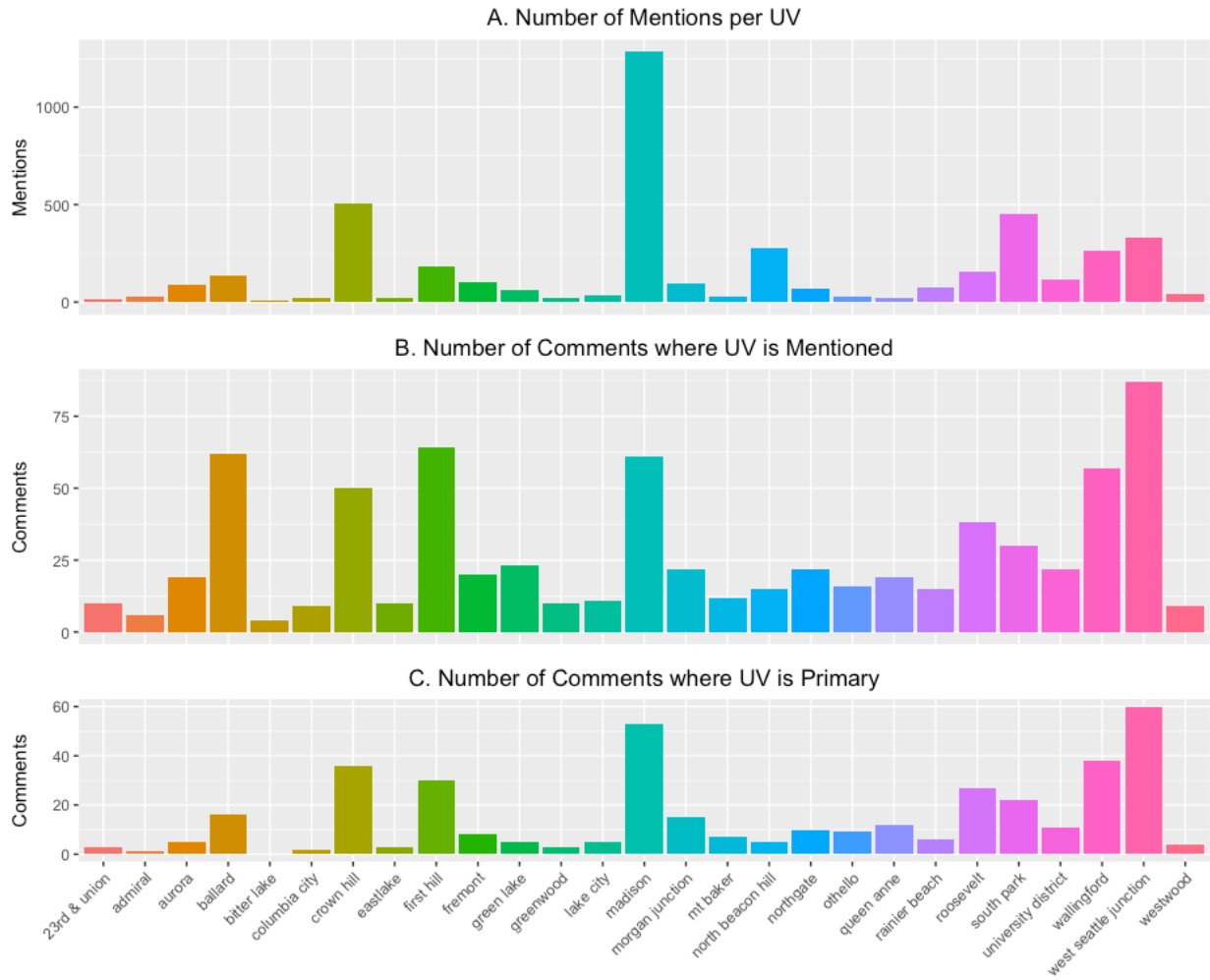


Figure 1.3: Comparison of automated (y) and manual (x) sentiment analysis, demonstrating insufficiency of popular sentiment dictionaries. In an effective automated analysis, all supportive comments would have positive scores and all skeptical comments would have negative scores. Bing does best overall on this metric, but still misidentifies many comments.

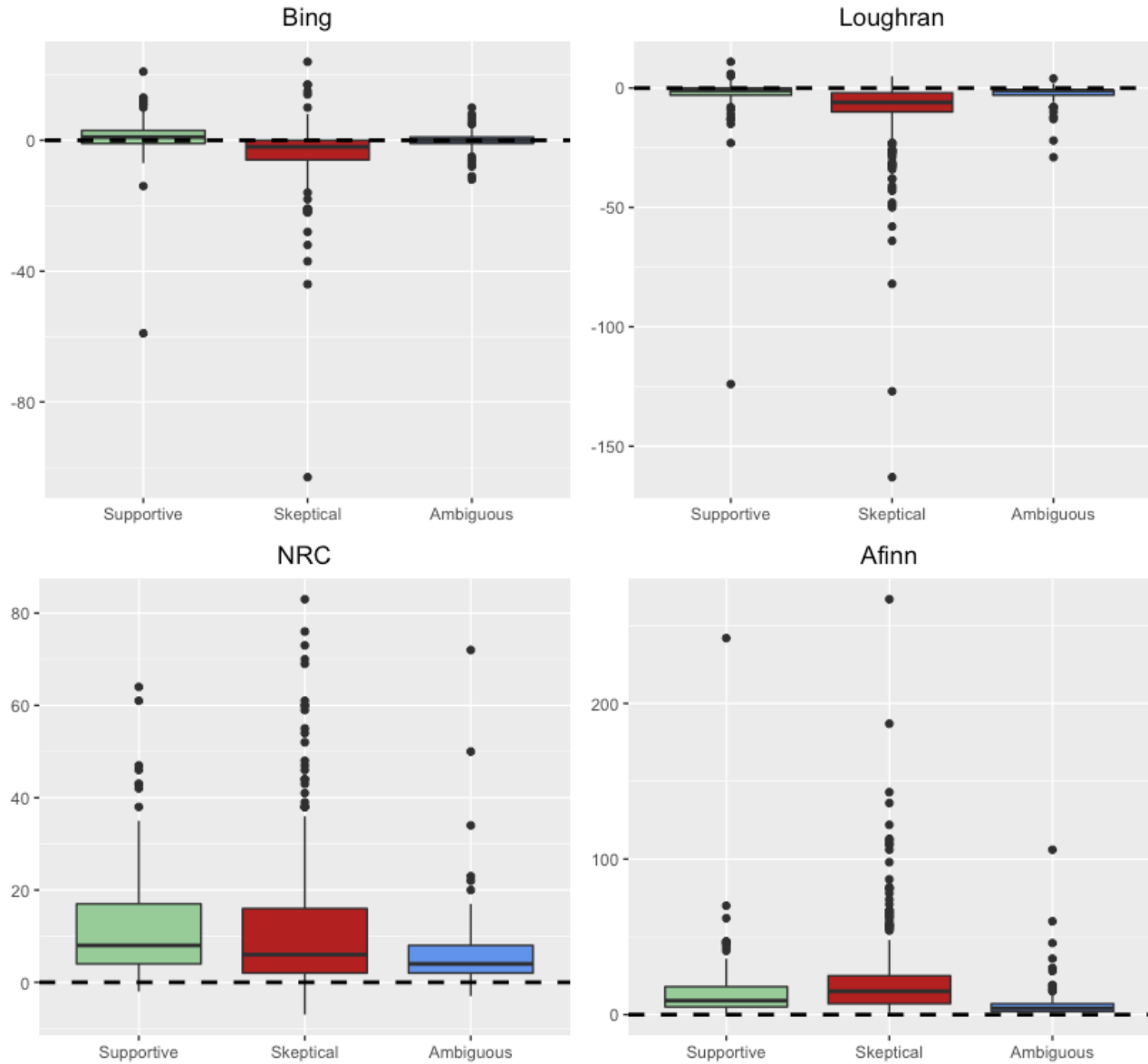


Figure 1.4: Sentiment distribution by urban village according to manual sentiment coding, organized from left to right by ratio of skeptical to supportive comments

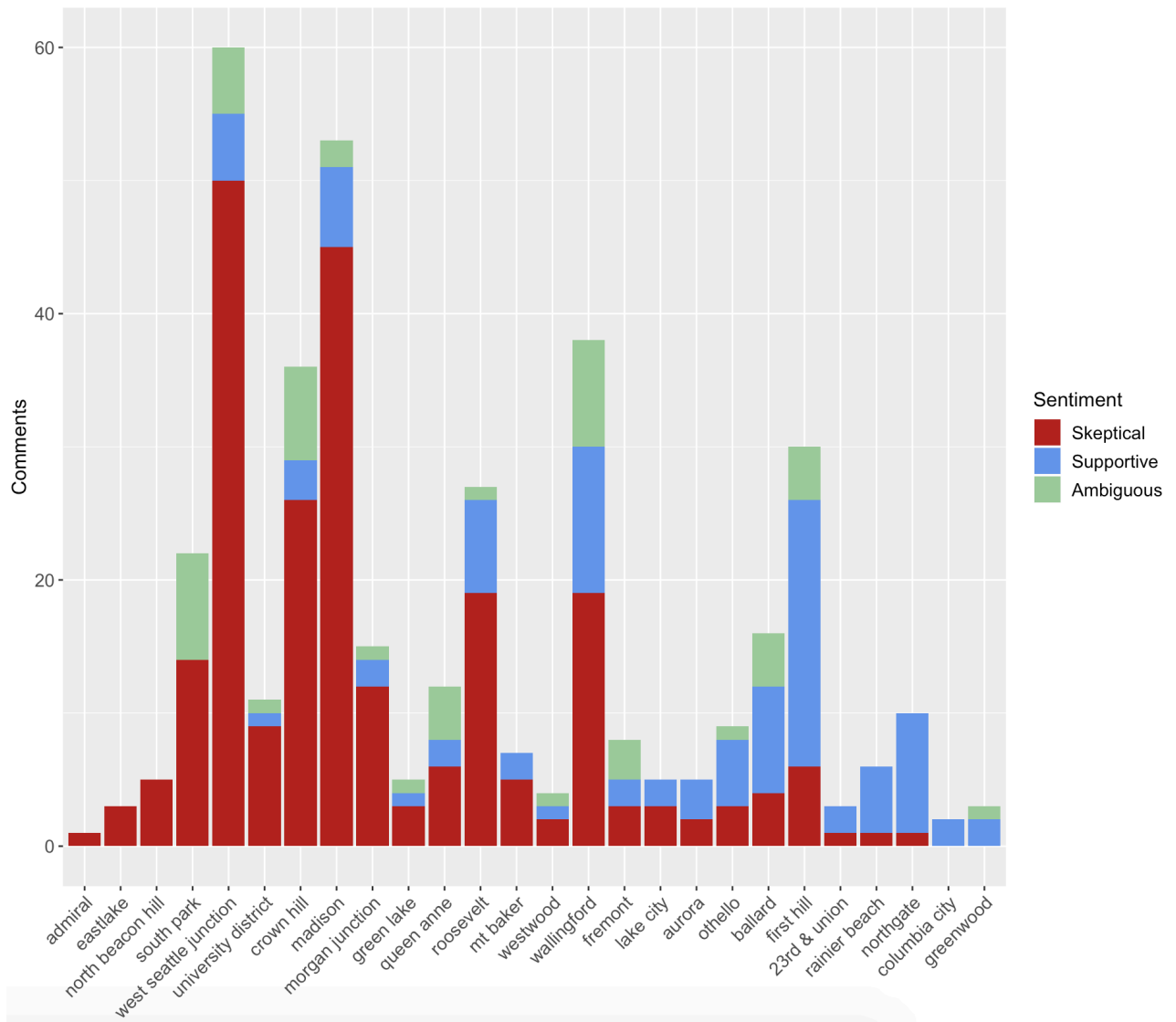


Figure 1.5: Topic model results for comments coded as “skeptical”, displaying ten highest-probability words for each topic

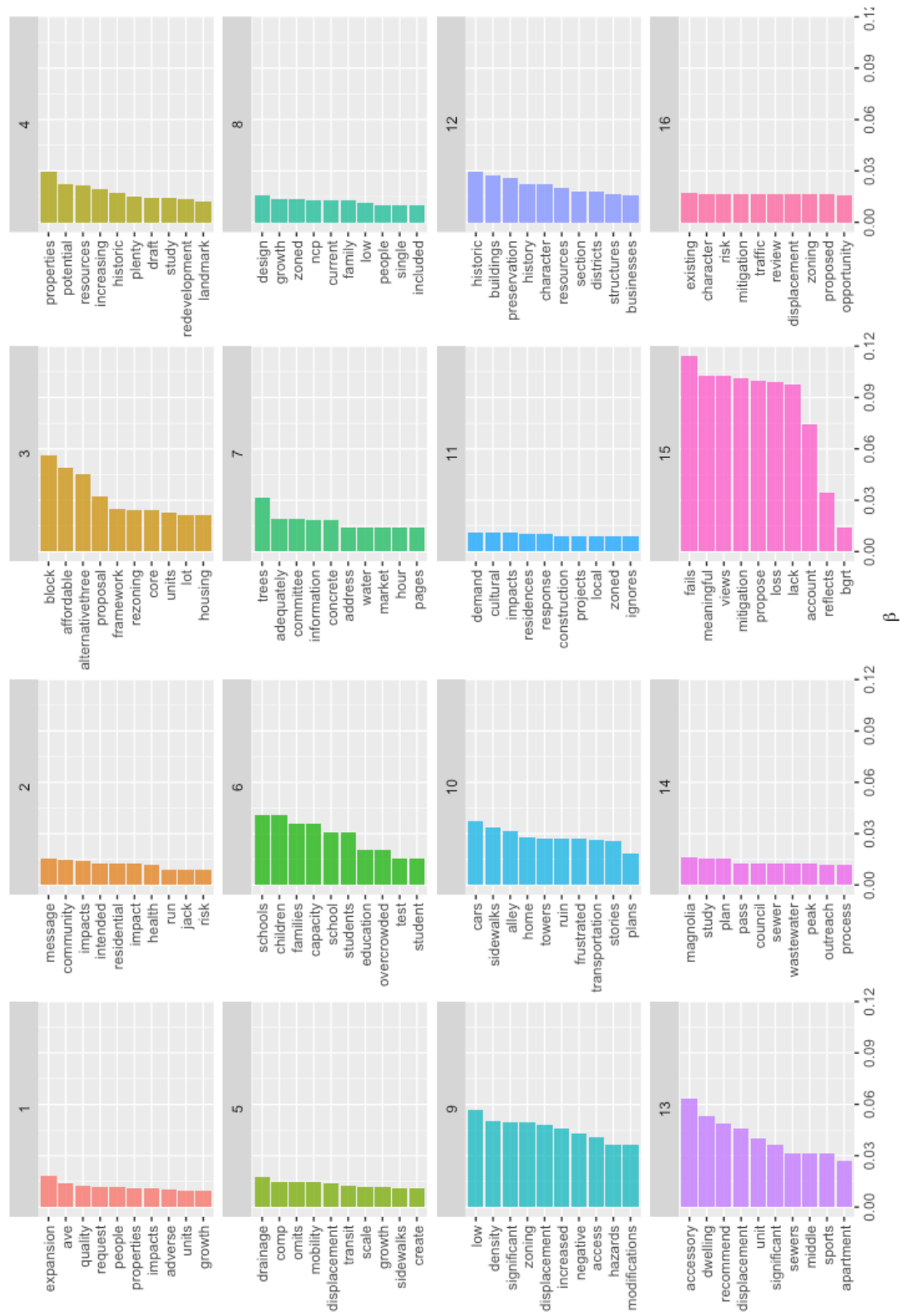


Figure 1.6: Topic model results for comments coded as “supportive”, displaying ten highest-probability words for each topic

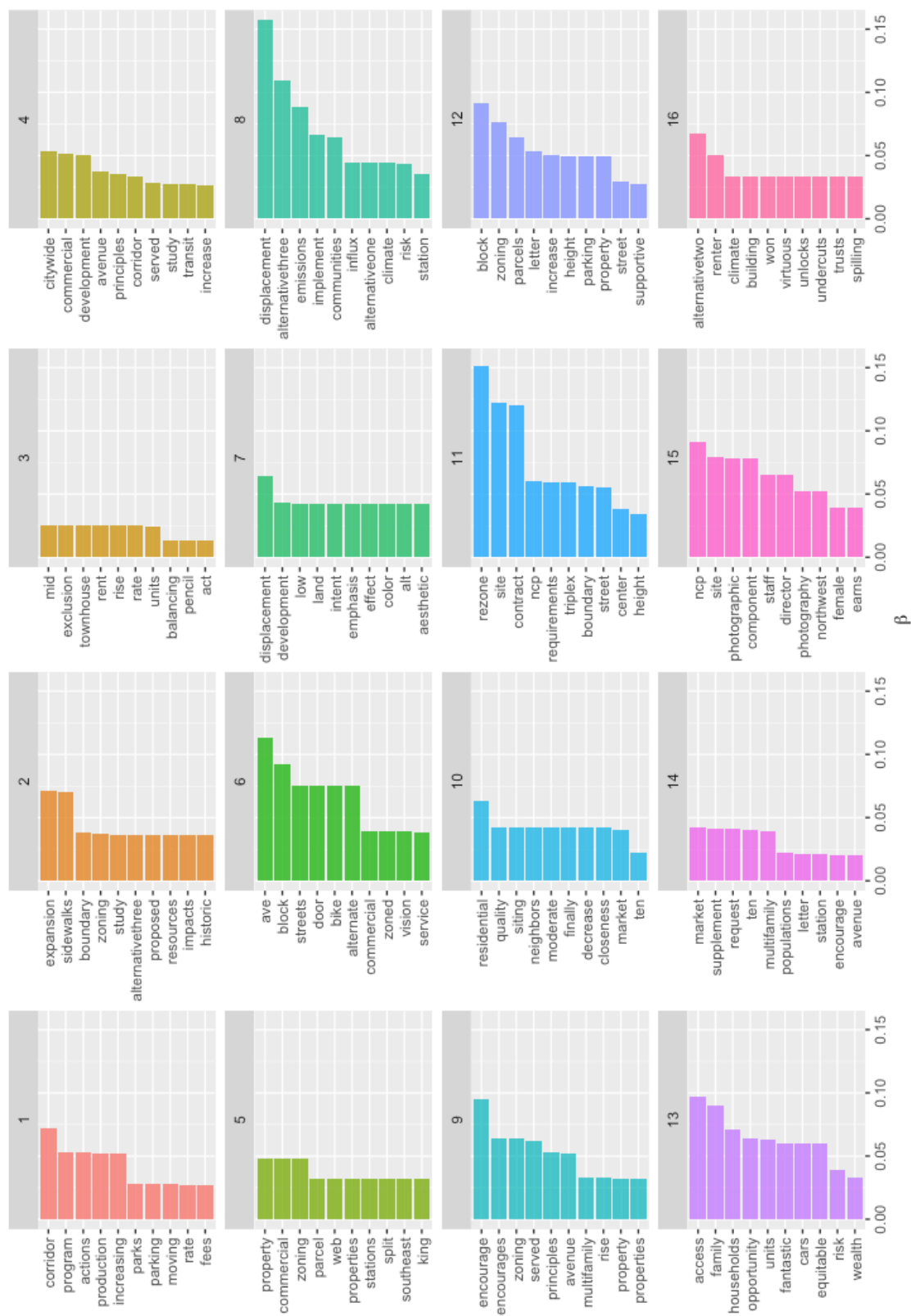


Figure 1.7: Word clouds representing the highest-probability topic associated with each comment for four villages/sentiment combinations: a) skeptical comments in West Seattle Junction, b) skeptical comments in South Park, c) supportive comments in First Hill – Capitol Hill, and d) supportive comments in Rainier Beach

A. West Seattle Junction (Skeptical)	B. South Park (Skeptical)
<p>Word cloud for West Seattle Junction (Skeptical) featuring terms like: rezones, review, account, lack, frustrated, mitigation, flawed, feedback, department, sewer, plan, reflects, views, hydrants, horse, medical, infrastructure, propose, days, character, meaningful, fails, rus, and others.</p>	<p>Word cloud for South Park (Skeptical) featuring terms like: engagement, transitions, growth, residential, committee, issues, hands, quality, properties, water, adverse, level, coalition, council, construction, pollution, trends, market, sewer, income, hours, zoned, police, sewage, message, planning, demand, welcoming, ruin, careful, measures, response, build, projects, minutes, attendees, afford, cars, agenda, specific, input, peak, cultural, int, buy, fails, hour, community, relocation, strategy, livable, communities, residents, arterial, magnolia, ave, address, expansion, residences, rezone, condo, zoning, linden, homeowners, tree, mitigation, intended, gardens, arteries, consume, commenting, stories, pages, rich, identify, addressed, potential, impact, displacements, create, canopy, people, units, noise, developers, proximity, parked, industrial, cumulative, request, design, households.</p>
C. First Hill – Capitol Hill (Supportive)	D. Rainier Beach (Supportive)
<p>Word cloud for First Hill – Capitol Hill (Supportive) featuring terms like: produced, photographic, alternative, two, female, executive, avenue, projects, patches, eastern, virtuous, director, presence, create, trusts, hcp, unlocks, building, bracket, institution, units, pea, station, hcp, earns, northwest, won, influx, letter, increasing, advantages, spilling, balancing, institutions, initiative, risk, associate, accredited, center, parks, parcels, minimum, friends, market, rob, undercuts, climate, site, access, adjunct, increase, transit, photography, supportive, surrounding, communities, component, renters, staff, publicly, capitalize.</p>	<p>Word cloud for Rainier Beach (Supportive) featuring terms like: communities, risk, effect, create, market, color, aesthetic, policy, households, land, low, letter, intent, final, rent, displacement, alt, emphasis, institutions, cultural, income, analysis, coalition, exhibit, strategies, development.</p>

Figure 1.8: Form letter originating from West Seattle Junction

COMMENTS ON DRAFT EIS RE: MHA

<u>Overall Analysis</u>	DEIS is too superficial. Fails to make street level assessment of things like traffic, parking, infrastructure. Fails to take into account impact of other contemplated City projects including Terminal 5, ST3
<u>Community Feedback</u>	DEIS fails to take into account documented Junction neighborhood feedback.
<u>Lack of Affordable Housing</u>	DEIS reflects Junction will not gain meaningful affordable housing in exchange for massive rezones to its neighborhood.
<u>Neighborhood Plan</u>	DEIS reflects City's failure to honor neighborhood plan.
<u>Traffic</u>	DEIS analysis is flawed; Fails to utilize meaningful data.
<u>Green Space</u>	DEIS fails to propose mitigation for loss of greenspace in already lacking neighborhood.
<u>Neighborhood Character</u>	DEIS fails to accurately describe existing neighborhood character and the impact of the proposed changes; DEIS fails to propose mitigation for negative impacts.
<u>Loss of Light and Air</u>	DEIS fails to propose meaningful mitigation with respect to loss of light and air on ground floor of existing buildings
<u>Loss of Views</u>	DEIS fails to identify protected public views or private views that will be lost or to propose meaningful mitigation.
<u>Historic Buildings</u>	DEIS fails to recognize historic buildings in Junction.
<u>Public Safety</u>	DEIS fails to take into account existing lack of access emergency services and impact of increased density on response times, etc.
<u>Utility Infrastructure</u>	DEIS fails to acknowledge lack of adequate infrastructure to support proposed increased density; Analysis is flawed.
<u>Schools</u>	DEIS fails to note existing lack of school capacity and impact of increased density thereon.
<u>Other</u>	I have other concerns regarding the DEIS including, but not limited to, the following:

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Chapter 2: Displacement through Development? Spatial and Temporal Dynamics of Residential Eviction and Capital Investment

2.0 Abstract

Residential eviction is a powerful form of displacement that maintains and amplifies socioeconomic and racial inequalities through the rental housing market. However, despite its documented effects on life course outcomes and its status as a form of legal housing dispossession, the potential role of residential eviction in processes of neighborhood change has often been overlooked. Applying Neil Smith's theory of uneven geographical development, I argue that eviction provides a powerful mechanism through which property owners can directly facilitate the displacement of existing residents prior to property redevelopment. This paper examines the specific relationship between residential evictions and the investment of capital in property redevelopment, using spatio-temporal models to measure the relationship between eviction notice filings and property activity records for two cities in the Seattle metropolitan area. It finds an increased risk of eviction at properties where permit applications for demolition or renovation are filed in the following year, which indicates that evictions may be used as a tool to facilitate displacement immediately prior to property redevelopment. It also finds significant spatial effects generated by these types permit applications, suggesting that evictions are more likely to occur in a broader neighborhood context of built environment change. These findings suggest that residential evictions are linked to property redevelopment both at individual properties and at the neighborhood scale, and also situate evictions at early stages of neighborhood change where construction activity is imminent but has not commenced. These findings have important implications for the study of displacement and neighborhood change,

highlighting the significance of residential evictions in displacement research and suggesting that residential eviction may serve as a useful indicator of subsequent neighborhood transformation.

2.1 Introduction

While often overlooked in studies of mobility and displacement, residential eviction is a process that impacts millions of households each year, with 2.35 million eviction filings and approximately 900,000 evictions across the United States in 2016 alone (Desmond et al., 2018). Research has already shown that eviction is an important factor in the perpetuation of disadvantage among low-income communities and communities of color, exacerbating existing social and economic inequalities through forced mobility (Desmond, 2012). However, recent evidence also suggests that evictions are also a crucial mechanism of displacement in areas facing substantial change. In Canada, an increasing amount of attention is being paid to the twin phenomena of “renoviction” and “demoviction”, in which property owners are legally able to evict tenants in order to renovate or demolish their property (Advocacy Centre for Tenants Ontario, 2019; Woods, 2020). This is echoed by similar stories in the United States, such as that of Fox Cove Apartments in a suburb of Seattle, Washington, where an entire apartment complex was evicted simultaneously after a developer purchased the property (Davila, 2018). These stories suggest an important link between property redevelopment and the physical displacement of households, which has significant equity implications particularly in neighborhoods experiencing rapid change and significant capital investment. Despite numerous anecdotal accounts, however, there is limited empirical evidence regarding the prevalence of this phenomenon or the extent to which residential evictions are linked to processes of property redevelopment. This paper therefore addresses that gap by examining the relationship between evictions and property activity in the Seattle metropolitan area, using novel sources of

administrative microdata that permit analysis of these phenomena at the level of individual properties.

This paper considers the spatial and temporal dynamics of the relationship between evictions and changes in the built environment, using a combination of permit and property sale data from local government agencies and property-level eviction data scraped from county court records by The Evictions Study, a multidisciplinary research project studying the prevalence of evictions across US cities. Recent research by The Evictions Study has found a strong racial disparity in eviction filings, where neighborhood variables such as diversity and poverty predict a high risk of evictions (Thomas, Toomet, Kennedy, & Ramiller, 2019). This study contributes to the literature on eviction and neighborhood change by exploring the role of property redevelopment and turnover in facilitating processes of displacement. Given that property (re)development can serve as a physical manifestation of processes of neighborhood transformation, this approach also reveals possible links between eviction and neighborhood change more generally.

In order to test the possibility that property redevelopment increases the risk of an eviction filing, this paper addresses several interrelated research questions. First, how do property activities – including permit applications for alterations, demolitions, and new building construction, as well as property transactions – influence the risk of eviction at a given property? Second, is there a temporal lag in these effects – does the strength of this relationship change if one event precedes the other? Finally, is there a spatial lag in these effects – are evictions more or less likely to occur in a broader context of neighborhood change where there is evidence of property activity in the *surrounding* area? The first two questions address direct physical displacement resulting from built environment change, highlighting properties where tenants

may be displaced as a way to facilitate redevelopment and determining when such displacement may occur in relation to development activity. The third question, meanwhile, highlights the possible role of indirect displacement resulting from broader shifts in neighborhood development patterns. This analysis does not seek to make broad generalizations about the relationship between gentrification and displacement, but rather focuses on the relationship between a specific indicator of gentrification (proposed changes to built structures and property turnover) and a specific indicator of displacement (formal legal eviction filings). Nonetheless, these findings may also provide insights into the relationship between development and displacement more generally.

2.2 Literature Review

2.2.1 Displacement and Eviction

Displacement is a multifaceted concept that speaks to the constraints on residential mobility and immobility imposed by structural conditions in the housing market. Following Grier and Grier (1978) and Marcuse (1986), Zuk et al. (2018) define four major types of displacement: 1) physical displacement, in which physical conditions such as utility shut-offs, rehab projects, and evictions force household mobility 2) economic displacement, in which economic pressures such as housing cost increases or negative income shocks force household mobility 3) chains of displacement, in which the displacement of one population instigates subsequent waves of displacement in their destination neighborhoods and 4) exclusionary displacement, where housing cost increases or conditions of occupancy preclude a household being able to live in a location that was previously accessible to that household. There are challenges in measuring each of these types of displacement: physical and economic displacement are difficult to trace due to the fragmented nature of mobility data and definitional

uncertainties, and the second-order effects are far less visible and even more difficult to measure directly. While a focus on any particular type of displacement is therefore incomplete, it is also important to recognize that all of these forms of displacement are connected and that individual cases of displacement may reflect the product of multiple pressures simultaneously. A greater focus on any one form of displacement could also provide valuable insights into the dynamics of residential displacement more generally.

One of the most significant forms of residential displacement is eviction – a legal mechanism that provides property owners with the ability to physically remove tenants. While allowable causes for eviction vary according to differing legal frameworks across states and localities, they often result from violations of the terms of lease such as non-payment of rent.⁴ Evictions may also have nothing to do with the tenants themselves: under the Ellis Act in California, for example, landlords possess the ability to issue “no-fault” evictions to tenants of rent-controlled properties that they intend to remove from the rental market altogether (Maharawal & McElroy, 2018). Regardless of their justification, formal evictions represent a form of “involuntary mobility” – along with informal evictions, landlord foreclosures, and building condemnations – that impose external conditions on tenants’ mobility decisions (Desmond & Shollenberger, 2015). Like these other forms of involuntary mobility, eviction can result from multiple types of displacement: while it is explicitly a form of physical displacement enforced by the state, it is also frequently driven by economic pressures such as rent increases or income losses. Although formal legal evictions are usually less common than other forms of involuntary mobility, they are worthy of special attention due to their unique legal power and their devastating effects on future life-course outcomes. In addition, evictions are likely impact

⁴ I expand on the legal context of evictions in Washington State and the specific municipalities under examination in a subsequent section.

those that are least able to move voluntarily, as they do not necessarily have the resources to respond to exogenous pressures such as rent increases.

While eviction can manifest in a variety of formal and informal ways, this study focuses on the legal action known as “unlawful detainer” through which a landlord uses the power of the state to reclaim possession of a rental unit and physically remove its occupants (Desmond & Bell, 2015). Formal evictions are distinct from other forms of displacement in two important respects. First, evictions generate instability in tenants’ lives by forcing them to abruptly find alternative housing and storage for their possessions, often with extremely little notice (Desmond, 2016). Second, and even more devastating, legal evictions become part of a tenant’s rental history and make it more difficult to obtain rental housing in the future (Desmond, 2012). The negative consequences of legal evictions have lasting consequences for evicted tenants, often forcing them into substandard rental housing in disadvantaged neighborhoods (Desmond & Shollenberger, 2015), increasing the risk of job loss (Desmond & Gershenson, 2016), and contributing to higher rates of depression, worse health outcomes, and higher levels of stress than in other households (Desmond & Kimbro, 2015). Evictions and their impacts are not distributed equally throughout society, but rather have been found to predominantly impact low-income households, black households, households with children, and low-income black women in particular (Desmond, 2012; Desmond et al., 2013). Eviction as a socio-legal device, therefore, primarily serves to re-inscribe and amplify existing social, economic, and racial inequalities through the rental housing market by facilitating physical displacement.

Although eviction is a prominent form of residential displacement, however, it is notoriously difficult to study and to link with processes of socioeconomic and demographic change. Although many scholars have argued in general terms that displacement is strongly

associated with neighborhood change (Atkinson, 2000; Marcuse, 1985; Slater, 2009), research into this relationship has long been hindered by challenges associated with definition, measurement, and the establishment of causal relationships. Empirical research on displacement is constrained by a lack of adequate data, which often limits research on displacement to inferences based on census and local survey data (Easton et al., 2019). As Newman and Wyly (2006) point out, the usefulness of survey data in displacement studies is highly limited, as “by definition, displaced residents have disappeared from the very places where researchers and census-takers go to look for them” (p. 27). This contributed to a long-term shift in the focus of neighborhood change research away from explicit efforts to assess displacement using either qualitative or quantitative methodologies (Slater, 2006). Without comprehensive microdata concerning individual cases of displacement and neighborhood change, it is difficult to assess the scale of the problem or to make causal statements about the relationship between the two phenomena.

Even when displacement has been considered alongside neighborhood demographic change, *eviction* is rarely placed at the center of such analyses. Numerous accounts of gentrification make offhand references to the role of eviction in facilitating neighborhood transformation – such as an upper-middle-class family in Brooklyn using eviction as a tool to gradually remove rent-controlled residents prior to remodelling their property (e.g. Lees, 2003; Lees et al., 2008). However, in their landmark study on gentrification and displacement in New York City, Newman and Wyly (2006) exclude eviction from their definitions of gentrification-related displacement altogether. This follows from an argument by Freeman and Braconi (2002; quoted in Newman & Wyly, 2006) that evictions are theoretically and practically distinct from the displacement induced by gentrification:

“both anecdote and logic suggest that non-payment evictions are more often due to household financial crises than to incremental rent increases, even if relatively large. Short of an abrupt shock to income or to non-housing household expenditures, a rational renter would not remain in an unaffordable dwelling unit until the point where a non-payment eviction order is executed”.

Essentially, Freeman and Braconi propose that evictions are not a relevant component of gentrification-induced displacement because vulnerable households would move voluntarily in response to price increases rather than face a rising house cost burden and eviction risk.

This characterization can be challenged on several grounds. First, a narrow conceptualization of mobility based on the notion of the “rational renter” does not account for the variety of reasons why a household may attempt to stay even in the face of increasing cost burdens and risk of eviction, including the difficulty of moving and social or cultural attachments to a given place. Second, this argument does not account for the effects of neighborhood change on the behavior of *property owners*, as it may encourage them to remove their current tenants and increase rents before those tenants are ready or able to leave. Although landlords face certain legal constraints, they are often granted a fair amount of flexibility in deciding when and why to pursue evictions. A recent report on evictions in the Seattle region, for example, showed that landlords often use their own discretion in pursuing evictions, sometimes evicting people for small amounts of owed rent while letting others remain in debt for extended periods of time (Cookson et al., 2018). It is therefore plausible that landlords might strategically delay evictions, only formally evicting tenants when changing patterns of demand for rental housing make it profitable to do so. Changing property use offers another way for landlords to legally evict tenants, whether through conversion to owner-occupation (Maharawal & McElroy, 2018) or through “renoviction” and “demoviction” (Brais, 2018; Crosby, 2020; Filipic, 2019). While

eviction may not be the *primary* type of displacement induced by neighborhood change, it is therefore clearly worthy of consideration as a significant form of displacement in changing neighborhoods.

More recent neighborhood-scale studies have sought to re-examine this relationship, using evictions records and census data to examine whether the prevalence of evictions is linked to specific demographic characteristics. In a direct empirical analysis of nearly 60,000 eviction filings over three years in Toronto, Chum (2015) finds that evictions are positively associated with neighborhoods exhibiting the demographic and socioeconomic characteristics of early-stage gentrification and “pre-gentrification” such as an increase in the population of artists or highly educated individuals. On the other hand, Thomas (2017) finds that in King County, Washington (which encompasses the city of Seattle and many of its suburbs), contextual neighborhood effects such as racial diversity and poverty are associated with higher rates of eviction. In addition, eviction prevalence is lower in neighborhoods where socioeconomic status is increasing, which suggests that evictions are more closely associated with the presence of disadvantaged populations than with processes of neighborhood change and gentrification. These findings, along with accounts of vulnerable tenants facing serial eviction (Desmond, 2016), suggest that evictions follow particular at-risk populations as they move from one place to another, rather than serving as a mechanism or indicator of neighborhood change per se. This complicates the notion that there is any specific association between evictions and neighborhood change, supporting Freeman and Braconi’s assertion that evictions are a separate and unrelated process of displacement.

While these studies each make compelling cases, however, the use of aggregated survey data makes it difficult to directly link evictions to neighborhood change or to assert anything

about the causes of eviction in neighborhoods that *are* experiencing change and gentrification. Are evictions directly tied to processes of neighborhood change, or do “pre-gentrified” neighborhoods simply have larger populations *already* at risk of eviction? This challenge characterizes much of the research on gentrification and displacement, which is constrained by a lack of sufficiently detailed microscale data. One prominent exception is the work of the Anti-Eviction Mapping Project (AEMP), a research collective that uses data on “Ellis Act Evictions”, in which eviction takes place due to the conversion of properties from renter-occupied to owner-occupied, to directly link individual evictions to processes of gentrification in the San Francisco Bay Area (Maharawal & McElroy, 2018). The AEMP’s work powerfully demonstrates not only the extent of what they term the “eviction epidemic” in the Bay Area – long a focal point for widespread socioeconomic transformation – but also the close association of eviction with various indicators of gentrification including tech shuttle stop locations and evidence of real estate speculation. This approach provides a path forward for future research into neighborhood change and displacement: rather than relying solely on aggregate neighborhood-scale indicators to determine whether an area is changing, researchers could leverage data at much finer scales in order to connect specific processes of displacement to specific processes of neighborhood change. This study seeks to build on this revelation by focusing explicitly on one such relationship, building on decades of critical geographic theory about gentrification to link patterns of residential evictions with flows of property development capital.

2.2.2 Gentrification and Uneven Development

Gentrification is a complex and multifaceted idea that has seen substantial evolution over the past several decades. Long considered a “chaotic concept” due to the complexity of social and economic processes at play and the relative lack of scholarly consensus around its meaning

(Rose, 1984), the notion of gentrification has been further complicated over the years by the proliferation of types of gentrification in a range of urban, suburban, and rural settings (Lees et al., 2008). Different methodological and ideological orientations have even produced entirely different impressions of the extent to which gentrification is a problem or even exists (Brown-Saracino, 2017). At its root, however, gentrification is primarily framed as the simultaneous transformation of places and the people inhabiting them. Clark (2005, p. 258) defines gentrification as “a process involving a change in the population of land-users such that the new users are of a higher socio-economic status than the previous users, together with an associated change in the built environment through a reinvestment in fixed capital.” Although quantitative gentrification studies often focus on changes in socioeconomic status, racial composition, and commercial activity, this definition reflects that the other crucial component of gentrification is the *physical* transformation of neighborhood spaces. A great deal of attention has been paid to the role of public investment in facilitating gentrification through decisions about the allocation of transportation infrastructure, schools, and parks (Zuk et al., 2018), or by lending political and financial support to privately-owned “megaproject” developments (e.g. Zukin, 2009). However, *private* investment in the built environment can play an even more fundamental role in gentrification. The transformation of the physical housing stock has been associated with the phenomenon of gentrification ever since the term was first coined by British sociologist Ruth Glass (1964), who described the process in London in terms of the transformation of old Victorian homes from lodging houses to more expensive flats and the social changes that went along with this “upgrading”. While the consequences of gentrification are often rooted in race and class, the underlying causes are linked with flows of investment capital. The reinvestment in the physical fixed capital of the built environment serves both as a driver and as a powerful

representation of the broader economic, social, and cultural transformations occurring simultaneously within those spaces.

Neil Smith's foundational theory of uneven development, which describes the economic mechanisms underlying patterns of private investment and disinvestment across urban neighborhoods, builds on this perspective by framing capital investment in the built environment as a central driver of gentrification. As Smith (1979) argues, the capital initially invested in built structures depreciates over time as buildings become older and more difficult to maintain, leading to different patterns of neighborhood use over time. As he describes, one common historical pattern in US cities is that as a neighborhood's building stock ages and deteriorates, buildings are increasingly converted from owner-occupation to renter-occupation. As the maintenance of older buildings becomes more costly, landlords often pursue a strategy of "undermaintenance" in which they limit building repairs so that they can invest their capital elsewhere for a higher rate of return. Landlords' ability to defer maintenance is predicated on the marginal status of their tenants, who often have no choice but to accept suboptimal living conditions. This process has clear implications in the context of evictions. Without explicitly referencing Smith's theory, Desmond (2016, p. 75) points to the central role of eviction in reinforcing tenants' marginality: "For many landlords, it was cheaper to deal with the expense of eviction than to maintain their properties; it was possible to skimp on maintenance if tenants were perpetually behind; and many poor tenants would be perpetually behind because their rent was too high." Evictions are thus tied to patterns of disinvestment, serving as a tool through which property owners can ensure profitability without investing any additional capital by leveraging the threat of eviction. A separate but equally important consideration, however, is whether evictions may be implicated in patterns of *reinvestment* as well.

As the deterioration of the built environment continues, the present values of properties in a given neighborhood increasingly diverge from their potential values (or “potential ground rent”) if they were converted to “higher and better” uses. Eventually, the gap between the depreciated value of the land with the current built structure and the potential ground rent reaches such a point that it is more profitable for the property owner to either remodel or to tear down the existing structure and rebuild in order to more fully capitalize on the value of the land. According to this theory, neighborhood change and gentrification therefore arise in part from the ability of property owners and investors to obtain greater profit from redevelopment. When this occurs, existing residents are pushed out through a combination of 1) physical displacement as properties undergo redevelopment and 2) economic displacement as newer land uses and greater market interest increase housing costs. Existing residents are therefore gradually replaced by those with greater access to capital and the ability to consume new and renovated properties at higher rents. While the existence of a rent gap does not *guarantee* that neighborhood change will necessarily occur, it does provide a strong incentive for capital investment among landowners and developers and can be a catalyst for gentrification if demand exists (Smith, 1987). As signs of reinvestment in the built environment become evident, they can alter perceptions of a neighborhood and spur a cycle of demand and capital investment that increases the pace of neighborhood change (Hwang & Sampson, 2014). The importance of the neighborhood scale is further emphasized by Hammel (1999), who references Smith’s rent gap theory directly while pointing out that perception of neighborhood socioeconomic conditions can have a substantial impact on the desirability of that neighborhood as a site for investment. There are, therefore, two distinct potential effects arising from property activity: the direct effect of change occurring at a given property, and the effect of changes occurring in the surrounding neighborhood.

The renewal of the built environment might catalyze the displacement of low-income residents, then, by either directly removing them from particular properties undergoing change and decreasing the supply of relatively lower-cost older housing stock, or simply increasing the localized demand for housing among higher-income households. Following Smith's rent gap theory, one would expect to see displacement associated with the wholesale transformation of the built environment in the form of demolition and new building construction, reflecting efforts to capitalize on large rent gaps by completely replacing the existing building stock. Smaller changes to the built environment may have an important role as well: in classic stage models of gentrification, large-scale capital investment is preceded by smaller-scale rehabbing and remodeling by a group of "pioneers" that utilize a combination of sweat equity and private capital (Clay, 1979). Regional housing market conditions may also increase the association between displacement and smaller-scale changes: particularly in areas where housing supply has lower elasticity, displacement may result from a phenomenon known as "filtering up", in which formerly cheap housing in certain neighborhoods becomes more expensive by virtue of demand pressures (Been et al., 2019; Somerville & Mayer, 2003). While these actions do not necessarily represent the full capitalization of the rent gap within a given neighborhood, they could have similarly substantial effects on the existing neighborhood population. While this is a compelling theory, however, the effects of these activities on specific forms of displacement such as residential eviction have rarely been measured directly. Therefore, I now turn to a consideration of the direct relationship between residential evictions and property activity, seeking to establish whether evictions are implicated in Smith's theory of uneven geographical development.

2.3 Hypotheses

Drawing from this literature, I propose a series of hypotheses about the relationship between eviction prevalence and each form of property activity. First, at the level of individual properties:

H1a: Based on accounts of “renoviction” and “demoviction” in which evictions immediately precede property redevelopment, the risk of eviction will be elevated at properties where a building permit application is filed in the same year, and to a lesser extent in the years before a permit filing.

H1b: Risk of eviction will also be elevated at properties that are sold in the same year or the preceding year, under the assumption that evictions are more likely to occur after changes in property ownership.

At the neighborhood scale, following the notion that evictions may be more likely to occur in neighborhoods that are in the early stages of gentrification or “pre-gentrification”:

H2a: Given prior research on the prevalence of evictions in neighborhoods at early stages of gentrification (Chum, 2015), increased permit activity within 1000 meters of a property will increase the risk of eviction at that property either in the same year or the years prior to an eviction .

H2b: Property transactions in the surrounding area will have little to no impact on the risk of eviction, as there is little visible evidence of property turnover and less of a clear theoretical linkage between property sales and gentrification.

2.4 Data

To test these hypotheses, this paper analyzes a unique set of administrative data on evictions and property activity in Seattle and Tacoma, the two largest cities in the Seattle–

Tacoma–Bellevue Metropolitan Statistical Area. Although separated by only 30 miles, these two cities experienced broadly different historical trajectories as Seattle rose to prominence in the wake of the Klondike gold rush and saw subsequent economic booms from the successive siting of major companies in the region, including Boeing, Microsoft, and Amazon. Meanwhile, although Tacoma has remained an important port and industrial center, it faced economic decline over the latter half of the twentieth century due to deindustrialization. Though the two cities are linked through proximity and participation in the same regional economy, their fortunes continue to differ widely, even in the context of sustained economic and population growth throughout the region in the post-Recession period. According to census estimates, Seattle’s population grew 22.4% to 744,955 between 2010 and 2018, while its median household income grew 55.3% to \$93,481. Tacoma’s population, meanwhile, grew an estimated 9% to 216,279 while its median household income grew just 8% to \$51,269.

The two cities also differ in terms of their approaches to eviction law. As of the beginning of 2020, evictions in Seattle may only take place if the landlord has “just cause” (which includes failure to pay rent, failure to comply with lease terms, or when a landlord intends to sell or occupy the property themselves), while Tacoma allows landlords to issue evictions without cause. Another important piece of legal context is that both cities have Tenant Relocation Ordinances to protect tenants from eviction in the event of displacement to teardowns, rehabilitation, or land use changes (City of Tacoma, WA, 2020c; Seattle Department of Construction and Inspections, 2020b). In both cities, landlords are required to pay half of the relocation assistance fee. In Seattle, they can be prosecuted for not informing their tenants of the program or attempting to force them out through drastically increasing rents (Cookson et al., 2018). However, tenants evicted for other “just cause” reasons appear to have no such

protections, meaning that evictions could be used as a way to avoid providing the required assistance prior to property redevelopment. Because these measures are designed to prevent eviction in the event of substantial changes to the built environment – exactly the type of event that this analysis is designed to explore – the results of this analysis specifically indicates cases in which eviction is employed in this manner.

This paper draws on address-level eviction filings collected by The Evictions Study from court records filed in King County in 2010, 2011, 2013, and 2017 and in Pierce County from 2010 and 2017, which are home to Seattle and Tacoma respectively.⁵ These data were collected by The Evictions Study by scraping PDF and TIF files from each county’s court record database and extracting text from those images using Tesseract 4.0 Optical Character Recognition (OCR) software. Addresses were then identified in the resulting text output using regular expression-based matching. Since there are often multiple addresses on any given eviction notice document, the likelihood that an address was the target of the eviction notice was evaluated using Naïve Bayes analysis of the ten words before and after the address. Extraneous information such as apartment numbers and special characters were then removed to standardize the format of each address (Thomas et al., 2019). Using the resulting dataset produced by The Evictions Study, I then geocoded these eviction notices in ArcMap using an address locator based on comprehensive Master Address Files available on the King and Pierce County data portals, which provide address coordinates with rooftop-level accuracy. Due to the presence of small spelling inconsistencies found in the original documents or introduced during the text analysis process, the spelling sensitivity and address matching thresholds are set at the minimum level

⁵ The inconsistent time frames of these two data sets reflect constraints on court record access. Beyond their demographic and economic differences, this means that Seattle and Tacoma should be regarded as independent case studies rather than as a single dataset.

during geocoding. The addresses were filtered to include only addresses in Seattle and Tacoma, using fuzzy string matching with a maximum difference of 20% to search for approximations of each city's name within the address strings. Although tenant's name can be used to estimate individual tenant characteristics such as gender and race, this analysis focuses solely on the location of evictions due to the fact that characteristics of tenants at properties where an eviction has not occurred cannot be deduced.

The resulting dataset consists of 18,875 eviction filing records, including 6,558 across four years of data in Seattle and 12,317 across eight years for data in Tacoma. Of these records, 89% were successfully geocoded, with 5,825 geocoded records in Seattle and 10,972 geocoded records in Tacoma. For addresses that were not successfully geocoded, reasons for failure originate primarily from errors in the address extraction process or the introduction of erroneous characters. One common error is some variation of "Superior Court of Washington" as the primary address, indicating in these cases that the courthouse was mistakenly identified as the site of eviction during the scraping process. Even more prevalent were cases with small address misspellings that could not be interpreted in geocoding process. These data show that the total number of evictions in Seattle has decreased slightly over time, from 1,946 in 2010 to 1,437 in 2017. Meanwhile, the volume of eviction filings in Tacoma increased from 1,430 in 2010 to 1,716 in 2015 before falling slightly in the subsequent years (Figure 2.1).

It is important to note that these eviction filings are distinct from physical removals, which means that this analysis includes cases in which a landlord files for eviction even if the tenant subsequently is able to avoid physical removal through negotiation or payment of rent owed. Eviction filings should not be equated with actual evictions; indeed, as Garboden and Rosen (2015) note, some landlords use serial eviction filings to threaten tenants with the

possibility of eviction in order to ensure payment of rent even if actual evictions do not occur. However, eviction filings can also be used to pressure tenants to leave without following through with the full eviction process, making eviction filings an effective measure of attempted displacement that may include cases not captured in physical removals. While this data does not provide a perfect measure of evictions, it does provide an effective measure of a landlord's intention or willingness to evict a tenant. Intentionality is key in the formulation of this analysis, given that building permit applications *also* reflect the intention to transform the built environment, regardless of whether or not that transformation ultimately occurs.

Building permit data are drawn from Open Data portals for the cities of Seattle and Tacoma and include complete records for each permit application as well as information about the eventual outcome of the application. These permits are categorized by the cities of Seattle and Tacoma according to property type (Residential or Non-Residential/Commercial) and the type of activity being proposed. While there are dozens of distinct activity types listed across the two cities, this analysis focuses on three broad categories: 1) building additions, alterations, or remodels, 2) building demolition or deconstruction, and 3) new building construction. Other types of permits, which include curb cuts, shoreline exemptions, commercial tenant improvement, electrical, and plumbing are excluded from this analysis entirely. In Seattle, the number of these major building permit applications has largely risen throughout the 2010s after dropping precipitously at the start of the Great Recession in 2008. Each type of permit had consistently strong year-over-year growth in the post-Recession period, with new building construction applications seeing particularly strong growth between 2012 and 2017 (Figure 2.2a). While the overall volume of permits filed in Tacoma is substantially lower than in Seattle (as much as 50% lower in some years), it likewise saw stagnation in permit applications prior to

2012 and growth in subsequent years. However, permit filing activity has actually slowed in Tacoma since 2015, suggesting that capital investment may not be happening to the same extent in Tacoma as in Seattle.

Property sale data is drawn from sale record datasets maintained by the King County Office of Assessment and the Pierce County Assessor-Treasurer, which both include property transaction information including transaction type, sale price, and address. These transactions include traditional “arms-length” property sales between independent parties as well as other types of transactions such as foreclosures, inheritances, and transfers in ownership between LLCs. I include all recorded transactions, given that even zero-price transactions likely indicate a change in ownership or property status even if no money is exchanged. The volume of property sale transactions in both counties over time mirror the volume of permit activity, recovering from a post-2008 slump and increasing steadily in the late 2010s (Figure 2.2b). Both permit activity and property transaction activity reflect a context of substantial economic and population growth during the study period, which has important implications for the context of evictions during that same time period.

These three datasets – eviction filings, permit applications, and property transactions – are linked via intersection with tax parcel polygons provided via the county open data portals. Eviction and permit data are spatially joined to the parcel layer, while property transaction data is linked to parcels through Property Identification Numbers assigned by the Office of the Assessor. This method permits the integration of these disparate datasets, and the use of tax parcels geometries allows for small discrepancies in address coordinates between eviction notice and permit data. As a final step, estimates for neighborhood racial composition and rent are taken from the 2008-2012 and 2013-2017 five-year American Community Survey (ACS) tract-level

estimates and are assigned to tax parcels by spatial join. These two time periods are selected to provide a sense of how neighborhoods in the study areas have changed over the study period, encompassing all years of eviction filing data.

2.5 Methods

As a basic test of the hypothesis that changes in the built environment can be directly tied to individual cases of residential evictions, I begin by calculating the risk ratio for an eviction being filed (v) at a property where a permit is also filed (p):

$$RR = \frac{vp_{l1}/p_{l1}}{vp_{l0}/p_{l0}}$$

V represents the number of properties with an eviction was filed in a given year, p_1 represents the number of properties where a given permit application type or property sale occurred, p_0 represents the number of properties where the given permit application or property sale did *not* occur, and l represents the time lag in years between the eviction and the property activity.⁶ This provides a measure of the extent to which evictions are more likely to co-occur at with a given property activity, while also accounting for the possibility that there might be a temporal lag between the two events. A value greater than 1 indicates that eviction is more likely to occur when a given property activity occurs l years after, while a value less than 1 indicates that eviction is less likely to co-occur when the property activity occurs l years after. These risk ratios are calculated for each year of evictions separately (every year between 2010 and 2017 for Tacoma, and 2010, 2011, 2013, 2017 for Seattle) as well as for all years of eviction combined, using temporal lags between -2 and 2 to explore how these relationships differ for the years immediately before and after an eviction occurs.

⁶ A positive l indicates that the property activity took place l years after an eviction, while a negative l indicates that the property activity took place l years before an eviction

I then run a series of multivariate logistic regressions at the property level to measure whether permit applications predict a higher incidence of eviction, v , at a given property, based on the following model:

$$v = f(\beta_1 P_l + \beta_2 N + WP_l\gamma + \delta + \varepsilon)$$

This model estimates the spatial and temporal relationship between evictions, permit applications and property transactions. P_l represents a vector of binary variables associated with whether or a given property activity has occurred, with time lag from an eviction year l falling between -2 and 2. An l of 0 indicates that the property activity occurred in the same year as the eviction, while a negative l indicates that the property activity occurred before the eviction and a positive l indicates that it occurred after the eviction. N represents a vector of tract-level race variables that could be associated with neighborhood eviction prevalence, including the proportion of the renting population that is black, the proportion of the renting population that is Hispanic, and the change in those proportions over the course of the study period. Although other socioeconomic variables such as median rent, median income, and poverty were also considered, their strong correlations with racial demographics and their invariably weak effects on model outcomes led to their exclusion from this analysis.

$WP_l\gamma$ represents a vector of the spatially lagged effects of permit application filings and property transactions, summing the volume of permit applications filed within a 1000-meter radius and multiplying by inverse weighted distance to account for distance decay. These variables measure whether the context of the surrounding built environment change is related to the likelihood of eviction beyond property-level effects, using 1000 meters as a threshold for neighborhood effects as it corresponds roughly to the median distance between census tract centroids in Seattle. Due to the high degree of collinearity for the level of property activity occurring in a given area in different years, three different temporal lags are examined

separately: the same-year spatial effects ($l = 0$), the spatial effects in the two years preceding an eviction ($l = [-2, -1]$), and the spatial effects in the two years following an eviction ($l = [1, 2]$). Finally, each model includes year fixed effects (δ) to account for the presence of multiple years of eviction data.

This model will be applied in stages, beginning with the simplest model and gradually adding both temporal and spatial complexity. Model 1 includes only the effects of each of the four main types of property activity on the risk of eviction occurring at the same property in the same year (P_0) and year fixed effects (δ). Model 2 adds in tract-level demographic control variables (N). Model 3 includes the temporally lagged effects of permits on eviction risk at the property level (P_l), where time lag $l = [-2, 2]$. Model 4 adds in the spatially lagged property variables ($WP_0\gamma$), where $W = 1000$ meters, removing the temporally-lagged site-level variables. Finally, Models 5 and 6 include interactions of the spatial and temporal lags ($WP_l\gamma$), where Model 5 includes both site-level and spatial effects for property activity in the preceding two years ($l = [-2, -1]$), while Model 6 measures the site-level and spatial effects in the following two years ($l = [1, 2]$). This phased approach ensures that the separate impacts of the temporal and spatial lags are fully considered. All model results are presented in terms of average marginal effects, which measure the extent to which each independent variable influences the probability of the outcome (Leeper, 2017).

2.6 Results

2.6.1 Temporal Patterns

At the property level, it is possible to detect clear patterns in the relationships between evictions and property activity, with particularly strong effects associated with permits for additions or alterations to existing structures. The risk of an eviction filing was 5.4 times higher

at properties where an addition/alteration permit application was filed in the same year in Seattle, and 5.9 times higher when that type of permit application was filed in the following year (Figure 2.3a). While the magnitudes of these associations are much stronger than for other permit types, they exhibit a relatively weak temporal trend, with a somewhat higher risk when a permit application is filed in the year following an eviction. The relatively consistent strength of these risk ratios over time indicates that there may be some unobserved property characteristics such as building age that influence both alteration permits applications and eviction filings. A similar pattern is apparent for evictions in Tacoma, albeit with somewhat lower magnitudes (Figure 2.4a). Whereas the risk ratio for alteration permits in Seattle ranged between 5 and 6, the equivalent relationship in Tacoma only ranges between 1.8 and 3. Notably, however, the temporal trend in this relationship is more readily identifiable in Tacoma, with the strongest relationship clearly occurring when such permits are filed in the year following an eviction. The appearance of this temporal trend in both cities points to the existence of a durable temporal relationship, in which evictions are immediately followed by permit applications for property additions and alterations.

Demolition permit applications also exhibit a clear temporal pattern in Seattle, particularly in the years immediately surrounding an eviction. In the year immediately preceding an eviction, the risk ratio in Seattle is exactly zero for every year of eviction data. This makes sense, given that a property is likely to already be vacated in the year following a demolition permit application. At properties where an eviction was just filed in the previous year, however, the risk ratio increases to 2.8. As with additions and alterations, this suggests that evictions may immediately precede demolition (Figures 2.3b). Although the strength of this association is much weaker for demolitions than alteration permits, the shape of the temporal pattern is more

compelling and speaks to an unusually strong relationship in the year following an eviction. These patterns are much less compelling and the data is much noisier in Tacoma (Figure 2.4b), due in part to the very small number of demolitions occurring in Tacoma overall. However, there is still some indication of a stronger relationship in the years following an eviction, particularly two years after an eviction has occurred. This may suggest that demolitions play a more consistent role in displacement in a city like Seattle, where the transformation of the built environment is occurring to a much greater extent. Meanwhile, the other sign of major capital investment – new building construction permits – does not exhibit a strong relationship with evictions in either city at any time lag (Figure 2.4c; Figure 2.5c).

Finally, while property transactions generally exhibit a fairly weak relationship with evictions, they also have the most consistent temporal patterns (Figure 2.4d; Figure 2.5d). In both Seattle and Tacoma, evictions are substantially more likely to occur at a property that is sold in the same year, with this effect being stronger in Tacoma ($RR = 3$) relative to Seattle ($RR = 2$). The effect is somewhat weaker in both cities when a property sale occurs in the year following an eviction, and is not significant at any other temporal lag. The consistency of this temporal trend across both cities and through multiple years of eviction data provides a compelling indication that a change in property ownership has a causal effect on the risk of eviction.

Overall, these risk ratio trends indicate that the risk of eviction is greater when renovation, demolition, or property sales occurs in the same year or in the following year, which points to the possible existence of “demoviction” and “renoviction” in the Seattle region. Although the magnitudes of these phenomena differ between the two cities, there is a relative consistency in the temporal patterns of these risk ratio relationships across both cities (with the

exception of demolition), which speaks to a dynamic not necessarily isolated to a specific spatial context.

2.6.2 Models

Having shown the existence of these temporal relationships between eviction and property activity, I now proceed with a series of models designed to directly measure the effects of these property activities on eviction risk in Seattle (Table 2.1) and Tacoma (Table 2.2), using average marginal effects to assess the extent to which each variable increases the likelihood of eviction. Focusing first on the same-year property-level relationship between eviction filings and property activity (Model 1), I find evidence of similar relationships to that which were found by measuring risk ratios in both cities: a positive relationship with alteration permits filed in the same year, a weaker positive relationship with property transactions, a weak negative relationship with new building construction permits, and no clear relationship with demolition permits. In Seattle, addition and alteration permits were associated with a 0.7% increase in the incidence of eviction, and property transactions were associated with a 0.3% increase. In Tacoma, the effects of alteration permits were weaker (0.4% increase), but property transactions had a substantially larger effect, associated with a 1% increase in eviction risk. The effects of new building construction permits, meanwhile, were negative in both Seattle and Tacoma, where they decreased the likelihood of eviction by 0.2% and 0.7% respectively.

These effects remain consistent even with the inclusion of demographic variables (Model 2), demonstrating that these effects are durable even when accounting for other factors often associated with eviction. In Seattle, the tract proportion of renting households that were black and Latinx contributed to small increases in the risk of eviction, as did an increase in the proportion of renting households identifying as black over time. In Tacoma, on the other hand,

the proportion of black renting households was associated with a *substantially* higher eviction risk, but an increase in that proportion over time was actually associated with a *lower* risk of eviction. This may indicate that while evictions are more likely to occur in stable black neighborhoods in Tacoma, they are also more likely to occur in neighborhoods that are beginning to gentrify and seeing declines in their black populations. In Seattle, on the other hand, many of the handful of majority-black neighborhoods already experienced significant gentrification in prior decades: between 1970 and 2010, the historically black Central District neighborhood in the urban core went from having a population that was 48% black to only 20% (Morrill, 2013). The type of gentrification-induced eviction explored here would likely therefore be concentrated in neighborhoods in Seattle with a relatively small black population, meaning that these effects are weaker than in Tacoma. This confirms that race is a pertinent factor in shaping where, and to whom, residential eviction occurs, but the continued significance of the other variables suggests that neighborhood racial composition do not explain the relationship between evictions and property activity.

The introduction of temporal lags into this model largely reflects the patterns demonstrated by the risk ratios, but with very small differences (of around 0.1-0.5%) in the magnitude between different time lags for the same property activity variables (Model 3). In both Seattle and Tacoma, the effects of additions and alterations are consistently significant regardless of the time elapsed between permit filing and eviction. Property transactions are significantly associated with evictions in the same year, and to a lesser extent in the year following an eviction. Demolition permits are only significantly related in the year following an eviction in Seattle and two years after an eviction in Tacoma, as demonstrated by the risk ratio graphs. Overall, then, the largest effects of these activities for all property activity types are concentrated

around the year that an eviction takes place and in the following year or two, implying a context in which the eviction of tenants makes way for property redevelopment in the immediate future.

The same-year effects of remodeling and demolition permits also appear to extend across space. Temporarily setting aside the temporal lags and measuring the same-year effects of surrounding property activity on evictions, I find clear evidence of an association between evictions and property activity occurring in the same year in the surrounding area (Model 4). The one exception to this rule is property sales, which have no effect on eviction risk in Seattle and are associated with a 1% *decrease* in eviction risk in Tacoma. This could be attributed to the fact that such transactions are largely invisible – other than a possible for-sale sign, there may be little visual evidence that a neighborhood is undergoing significant turnover and therefore no clear mechanism through which to influence the incidence of eviction. Permit activity, on the other hand, is associated with increases in eviction risk far greater than those detected at the individual property level. While the effects of new building construction are not significant in Seattle, addition/alteration permits are associated with an 6.4% increase in eviction risk and demolitions are associated with a staggering 22.1% increase. These patterns are also reflected to a lesser extent in Tacoma, where alterations increase eviction risk by 3.5%, new building construction by 3.6%, and demolitions by 9.8%. There are two possible explanations for the strength of these relationships: either 1) the visible impact of such activities is likely to be fairly immediate, contributing to a sense that the neighborhood is undergoing some form of investment, or 2) following Smith (1979), the neighborhoods where displacement occurs tend to have properties where maintenance and redevelopment are increasingly seen as the most profitable option. Both explanations may apply to some extent, particularly in the context of demolitions: buildings are more likely to be demolished if their age or design makes complete

redevelopment more profitable than altering the existing structure, and there are also likely to be visible signs that a building is in a rundown state prior to its demolition.

When temporal lags are applied to the effects of permits in the surrounding area, the picture becomes somewhat more complex. There are two distinct theories for how the presence of activity in the surrounding area might be tied to the probability of eviction at a given property. If property activity precedes an eviction, it could be because visible activity signifies to landlords and property owners that capital is flowing into the neighborhood and that higher rents could be obtained by increasing rents or changing the existing property use. If, on the other hand, property activity follows an eviction, it could be that evictions serve as a “canary in the coal mine” for subsequent changes to the neighborhood. Focusing on the permits filed in the surrounding area in the two years preceding an eviction, the spatial effects are significant but somewhat weaker for both alteration and demolition permits (Model 5). The spatial effects of permit activity in the two years following eviction are also generally weaker than the same-year spatial effects, but are also generally much stronger than the preceding-year spatial effects and – in the case of Tacoma demolitions – are even stronger than the same-year spatial effects (Model 6). These patterns indicate that eviction may be a precursor to more widespread neighborhood change, as evictions occur in the years leading up to building permits being filed. Overall, then, while evictions generally seem to occur in contexts of built environment change regardless of time lag, this affirms the notion that evictions tend to occur at early stages of such change before physical evidence of substantial change exists. Eviction could therefore be useful as an early indicator of subsequent investment and could serve as the proverbial “canary” for certain types of neighborhood change.

2.6.3 *Alternative Specifications*

These effects are robust to a range of alternative specifications. Using the date that a permit issue was *issued* instead of the date that the permit application was filed by the property owner, for example, has a negligible effect because the turnaround for such permits is frequently no more than a few months. Changing the spatial lag measure also has a limited effect: when a 500-meter radius is used instead of a 1000-meter radius, the magnitudes of the effects are decreased but their direction is largely unchanged. Another major challenge for this analysis lies in the fact that it includes all alteration permits, regardless of whether those permits are for major projects such as complete renovations or smaller projects such as the installation of radio antennae. One solution to this problem is to utilize the estimated project costs recorded alongside each permit as a proxy for project size – therefore, I also test a model in which only addition/alteration permits in the top quartile for estimated project costs in their given permit category (Residential or Non-Residential) are included in the models. The effects of these “major” alteration permits are actually slightly stronger than for alteration permits overall, suggesting that significant capital investments play a more important role in the relationship with evictions than minor projects. While this result is encouraging, the inconsistency of data entry for the estimated project cost field makes the results of the initial models more reliable and comprehensive.

2.7 Discussion

These results point to a significant and durable relationship between evictions and property activity in Seattle. Although many of the effects are nominally small, it is important to recognize that the number of properties where eviction occurs is very small as well, amounting to no more than 0.2% of all properties in Seattle and 0.7% in Tacoma. These findings do not

necessarily demonstrate that property activity is the *primary* contributor to eviction, but rather that it can have a statistically significant effect on when and where evictions occur. These relationships are meaningful in the context of Neil Smith's theory of uneven geographical development, linking a specific form of displacement with specific vectors of neighborhood redevelopment. In general, the findings align fairly closely with the initial proposed hypotheses. Evictions are strongly associated with properties where addition/alteration are filed in the same year and even more strongly with properties where addition/alteration and demolition permits are filed in the *following* year, which points to a pattern of eviction immediately preceding property redevelopment that aligns with accounts of "demoviction" and "renoviction" (H1a). New building construction permits, however, are *not* strongly associated with eviction risk at the same property and may even have a slight negative effect on eviction risk, which may be due to the fact that new building construction normally takes place after a property has already been vacated. There is also an increased risk of eviction at properties that are sold in the same year or in the following year, which confirms the notion that other types of property turnover such as changes in ownership can also play a significant role in eviction risk (H1b).

The effect of permits in the *surrounding* area, meanwhile, varies based on permit type. As expected, the volume of addition/alteration and demolition permits in the surrounding area also substantially increase the risk of eviction at a given property (H1a). This effect is substantial regardless of precisely when the permits are filed, though the largest effect is generally in the same year that an eviction occurs, with a weaker effect in the years following an eviction, and the weakest effect in the years preceding an eviction. The same pattern is also found for new building construction permits in Tacoma, but the same pattern is not detected in Seattle, where the effects of new building construction are not very significant. One possible reason for this

disparity may be that new building construction is more widespread in Seattle whereas the presence of new building construction in Tacoma is a more meaningful indicator of neighborhood change because it is less common. Given that new building construction generally takes place at later stages of neighborhood change, however, the larger effects of alterations and demolitions confirm the notion that evictions are more likely in neighborhoods at earlier stages of capital investment. Finally, property transactions in the surrounding area have no effect on evictions in Seattle and may actually be associated with a *decreased* risk of eviction in Tacoma (H2b). Although changes in property ownership are meaningful for eviction risk at individual properties, this means that a broader neighborhood context of property turnover does not necessarily indicate that eviction is more likely to occur. Given the lack of a clear theoretical relationship between neighborhood change and the *volume* of property turnover, however, this finding does not seriously undermine the linkage between evictions and neighborhood change.

These findings support the underlying contention that the investment of capital in the built environment is directly linked with eviction risk. The strong property-level effects of demolition and alteration permits in the year following an eviction reflect accounts of “demoviction” and “renoviction”, suggesting that evictions may be used as a tool to remove tenants prior to investing in properties. The property-level effects of property sales also support this narrative; as the case of Fox Cove apartments illustrates, a change in property ownership can foreshadow efforts to transform the property’s use (Davila, 2018). Meanwhile, the effects of those same permits filed in the surrounding area shows that there are not only the direct effects of property activity on eviction at specific properties but also an increased risk of eviction in neighborhoods experiencing a higher degree of activity overall. This points to the possibility that evictions may be more likely to occur in changing neighborhoods, particularly at earlier stages

when remodeling and demolition are the primary types of intended property activity. These findings supplement studies based on aggregate demographic characteristics, demonstrating the role of more localized types of transformation in the property-level risk of eviction.

2.8 Conclusions

These results make a compelling case for the relationship between evictions and investment in the built environment, but there remains a great deal more to be explored in this area. One of the fundamental challenges with this type of study is the fragmented nature of available data; this analysis focuses on Seattle and Tacoma in large part because those are the jurisdictions where all necessary pieces of information – evictions, permit applications, property transactions, and property geographies – are readily available. The implications of these results may be far-reaching, but that will only become clear once similar results can be identified in a range of places facing different social and economic conditions. As noted previously, the story of the Seattle metropolitan area during the study period was largely one of rapid growth, with an increase in permit application filings and a corresponding decrease in eviction filings. The context is likely to be very different in cities not facing such rapid growth, as well as in cities with greater racial and economic diversity. Whether these same patterns also play out in the suburbs remains an open question, as well; Thomas et al. (2019) have noted that evictions in the Seattle metropolitan area are increasingly located in certain suburban locales.

More information about the characteristics of these evictions would also further elucidate the nature of the relationship between evictions and property activity. Information about the individual characteristics of households facing eviction such as race and socioeconomic status, building characteristics such as building age and size, and landlord characteristics such as whether the landlord is an individual or a corporation could reveal significant differences in the

strength and direction of these relationships. Building age is a particularly significant variable omitted from this analysis, as Smith's theory is premised in part on redevelopment being more likely in neighborhoods with an aging building stock and this could be used to either further support or challenge the findings explored here. While the building age information provided by the county tax assessment offices examined here does not provide a sufficiently reliable source for its inclusion in this analysis, such data may be available from other sources and in other locations.

There are also opportunities to expand the definitions of displacement and development beyond those employed in this analysis. For example, while evictions represent a particularly extreme and traumatic version of displacement, they are far from the dominant method by which residents are displaced (Desmond & Shollenberger, 2015). These figures do not include the important but far more nebulous category of economic displacement – those driven out of a neighborhood by increasing costs of living. Expanding the definition of displacement could expand our understanding of how property development and capital investment play a role in neighborhood change more broadly. The definition of development could also be expanded and given further nuance, with more categories to differentiate built environment change by type and project scale. Determining whether development is associated with more prevalent forms of displacement – such as the economic displacement driven by rising rents – could have a substantial impact on housing and land use policy. Including property characteristics would also elucidate the built environment contexts in which displacement occurs, although that approach is particularly constrained by data availability as many municipalities do not systematically retain historical records of property characteristics. Finally, exploring the interactions between different types of property activity and different tract-level characteristics could reveal whether the

relationships between particular forms of development and displacement are prevalent in neighborhoods with populations considered more vulnerable to displacement.

Overall, these results suggest that this approach to displacement research – focusing on specific forms of displacement in relationship to patterns of investment in the built environment – has the potential to animate a robust research agenda. There are still many challenges inherent in this approach, many of which stem from issues of data supply and data quality, but this analysis suggests that these barriers can be at least partially overcome by spatially linking administrative datasets and tailoring the analysis to available data. Centering the built environment in displacement research has important implications for the study of neighborhood stability and neighborhood change more generally, highlighting the importance of capital investment in precipitating displacement and contributing to broader demographic shifts and emphasizing the role of uneven geographical development highlighted by Smith (1979) more than 40 years ago. While cities have evolved significantly in that time, the dominance of capital investment in the relationship between development and displacement remains just as relevant today.

Chapter 2 Appendix

Figure 2.1: Number of geocoded and non-geocoded eviction filings in Seattle and Tacoma for every available year between 2010 and 2017.

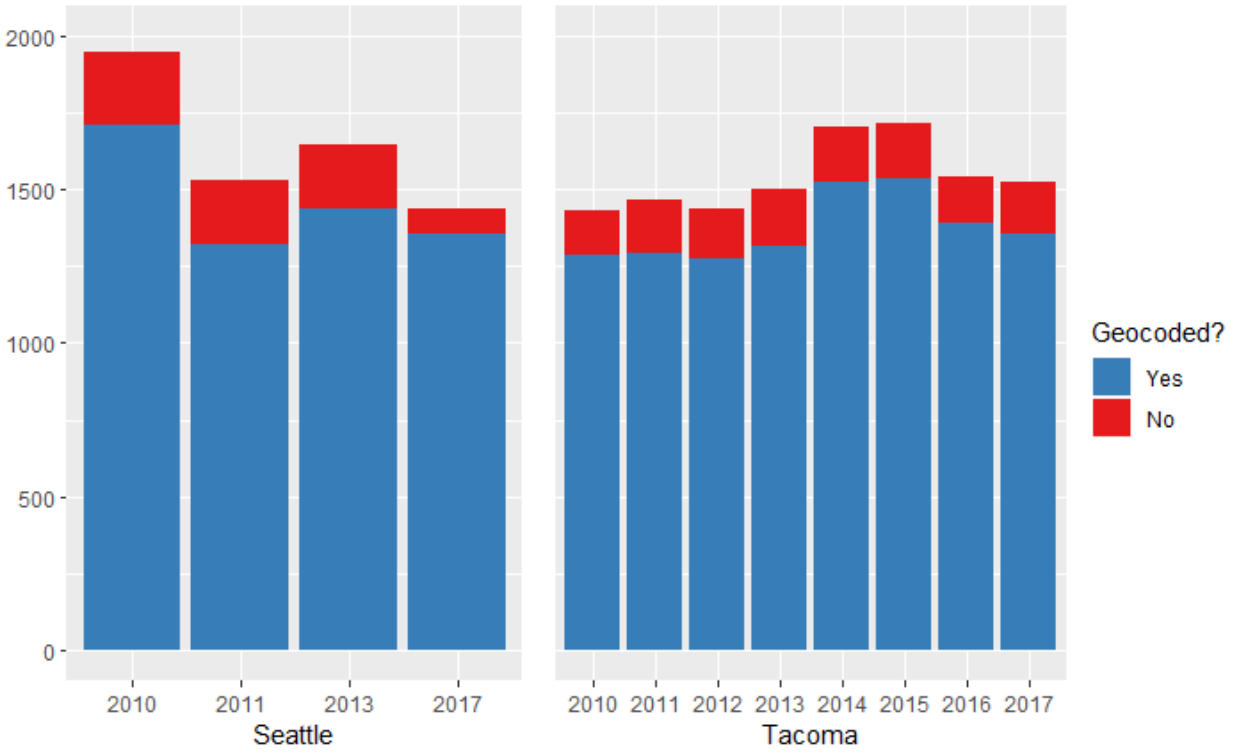


Figure 2.2: Permit application filings and property transactions per year in Seattle and Tacoma between 2008 and 2019 (City of Tacoma, WA, 2020a, 2020b; King County Department of Assessments, 2020; Pierce County Assessor-Treasurer’s Office, 2020; Seattle Department of Construction and Inspections, 2020)

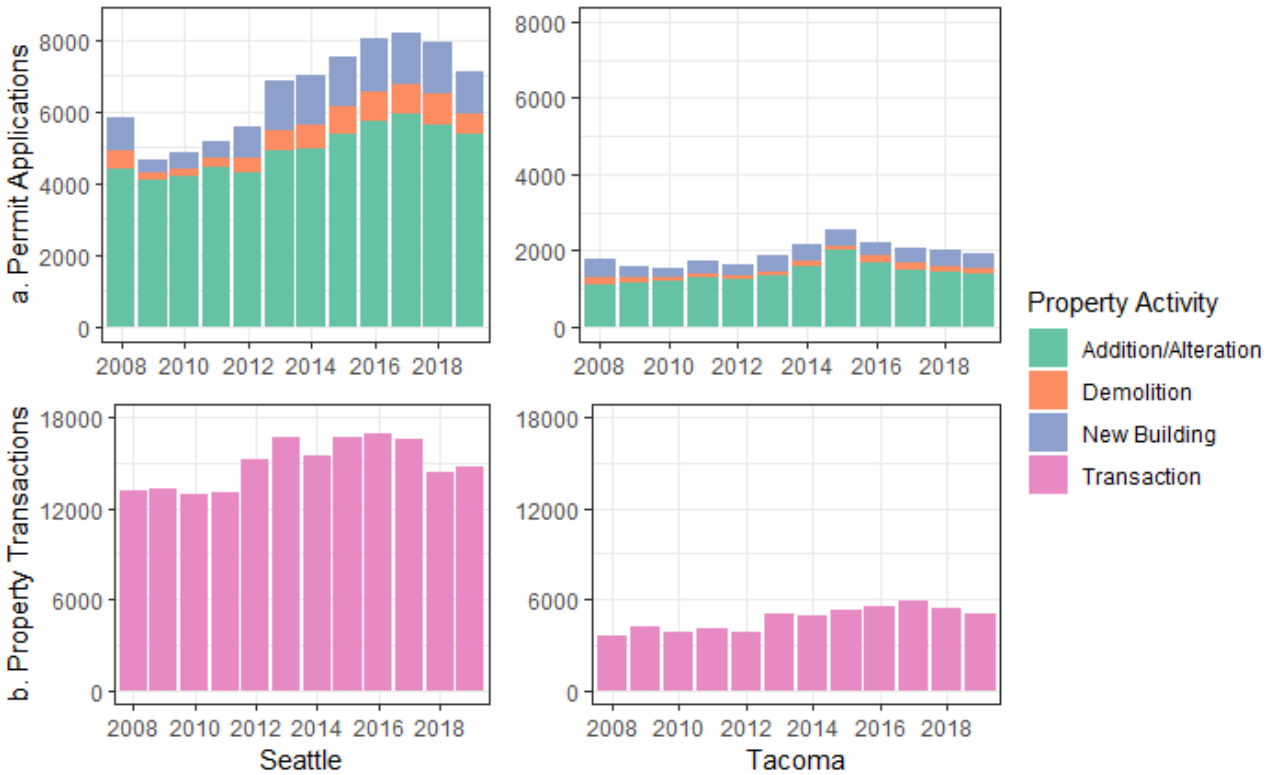


Figure 2.3: Risk ratio relationships between eviction filing and property activity based on the number of years before (negative) or after (positive) an eviction was filed in Seattle. Thicker black line indicates the estimated risk ratio for all years of eviction data are combined, and the grey band indicates the 95% confidence interval of this overall estimate. Thin colored lines specify risk ratios for individual years of eviction data.

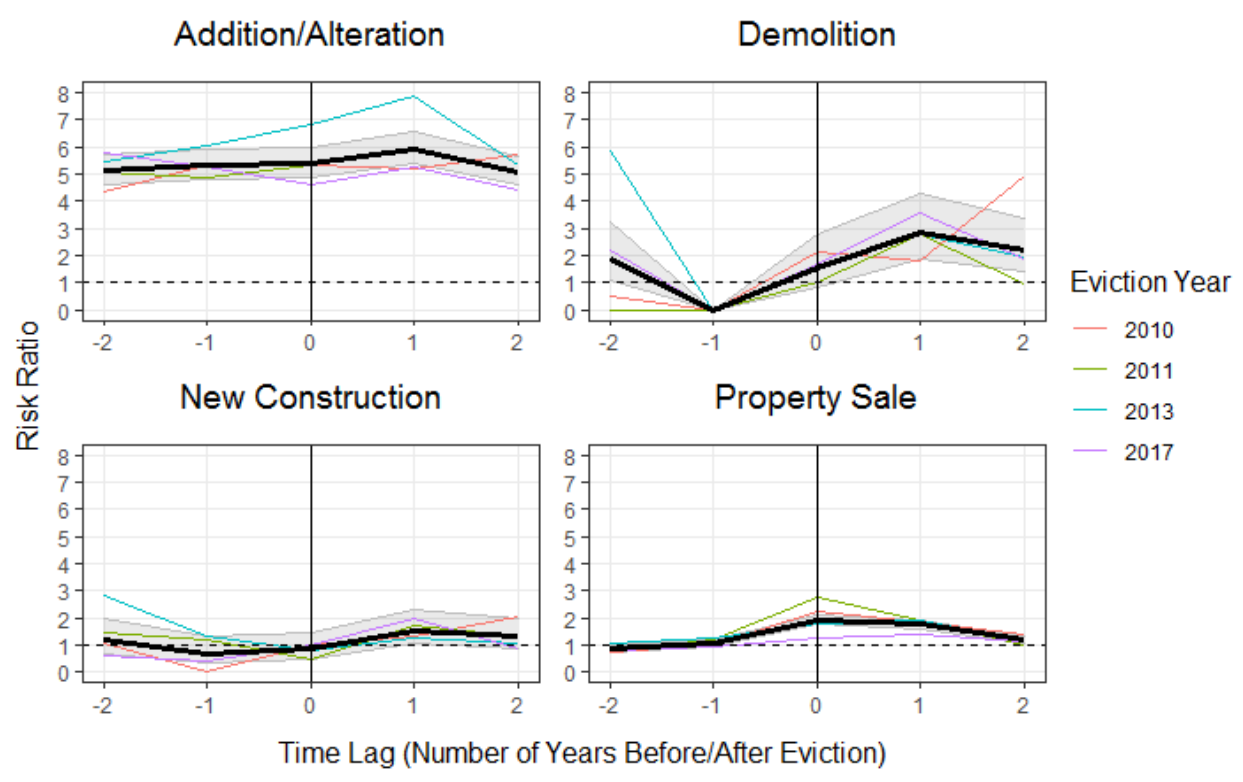


Figure 2.4: Risk ratio relationships between eviction filing and property activity based on the number of years before (negative) or after (positive) an eviction was filed in Tacoma. Thicker black line indicates the estimated risk ratio for all years of eviction data are combined, and the grey band indicates the 95% confidence interval of this overall estimate. Thin colored lines specify risk ratios for individual years of eviction data.



Table 2.1: Average marginal effects from regression models applied to Seattle tax parcels

	Model1	Model2	Model3	Model4	Model5	Model6
Alteration	0.007***	0.007***	0.004***	0.004***	0.003***	0.003***
Alteration (Pre 1)			0.004***		0.003***	
Alteration (Pre 2)			0.004***		0.003***	
Alteration (Post 1)			0.004***			0.003***
Alteration (Post 2)			0.003***			0.002***
Alteration (Spatial)				0.064***		
Alteration (Spatial, Pre 1-2)					0.04***	
Alteration (Spatial, Post 1-2)						0.036***
Demolition	0.002	0.002	0.002	0.001	0.002	0.001
Demolition (Pre 1)			-0.049		-0.048	
Demolition (Pre 2)			0.002		0.001	
Demolition (Post 1)			0.004***			0.003*
Demolition (Post 2)			0.003**			0.001
Demolition (Spatial)				0.221***		
Demolition (Spatial, Pre 1-2)					0.113***	
Demolition (Spatial, Post 1-2)						0.165***
New	-0.002†	-0.002†	-0.004**	-0.003*	-0.003*	-0.004**
New (Pre 1)			-0.003†		-0.003*	
New (Pre 2)			-0.001		-0.002†	
New (Post 1)			-0.002†			-0.002*
New (Post 2)			-0.001			-0.001
New (Spatial)				0.018		
New (Spatial, Pre 1-2)					0.029*	
New (Spatial, Post 1-2)						0.011
Sale	0.003***	0.003***	0.003***	0.003***	0.003***	0.003***
Sale (Pre 1)			0		0	
Sale (Pre 2)			-0.001***		-0.001***	
Sale (Post 1)			0.002***			0.002***
Sale (Post 2)			0			0
Sale (Spatial)				0		
Sale (Spatial, Pre 1-2)					0.003	
Sale (Spatial, Post 1-2)						0
% Black		0.004***	0.005***	0.006***	0.006***	0.007***
Δ % Black		0.002*	0.002*	0.002	0.002*	0.001
% Hispanic		0.011***	0.011***	0.014***	0.014***	0.013***
Δ % Hispanic		-0.001	-0.001	-0.003*	-0.004**	-0.004**
Year (2011)	-0.001**	-0.001**	-0.001**	-0.001***	0	-0.001***
Year (2013)	-0.001***	-0.001***	-0.001***	-0.002***	-0.001***	-0.002***
Year (2017)	-0.001***	-0.001***	-0.001***	-0.003***	-0.003***	-0.003***
AIC	38562	38381	37152	36455	36202	35893

† = p < 0.1 * = p < 0.05 ** = p < 0.01 *** = p < 0.001

Table 2.2: Average marginal effects from regression models applied to Tacoma tax parcels

	Model1	Model2	Model3	Model4	Model5	Model6
Alteration	0.004***	0.004***	0.002**	0.004***	0.003***	0.003***
Alteration (Pre 1)			0.004***		0.004***	
Alteration (Pre 2)			0.004***		0.005***	
Alteration (Post 1)			0.006***			0.005***
Alteration (Post 2)			0.006***			0.005***
Alteration (Spatial)				0.035***		
Alteration (Spatial, Pre 1-2)					0.026***	
Alteration (Spatial, Post 1-2)						0.031***
Demolition	0.003	0.004	0.003	0.003	0.004	0.003
Demolition (Pre 1)			-0.005		-0.005	
Demolition (Pre 2)			-0.008		-0.008	
Demolition (Post 1)			0			0
Demolition (Post 2)			0.006*			0.006*
Demolition (Spatial)				0.111***		
Demolition (Spatial, Pre 1-2)					0.088**	
Demolition (Spatial, Post 1-2)						0.137***
New	-0.007**	-0.008**	-0.01***	-0.01***	-0.008***	-0.011***
New (Pre 1)			-0.007**		-0.009***	
New (Pre 2)			0.001		0	
New (Post 1)			-0.009***			-0.014***
New (Post 2)			-0.006*			-0.01***
New (Spatial)				0.036**		
New (Spatial, Pre 1-2)					0.02*	
New (Spatial, Post 1-2)						0.038***
Sale	0.01***	0.01***	0.009***	0.01***	0.01***	0.009***
Sale (Pre 1)			0.001**		0.001*	
Sale (Pre 2)			-0.001		-0.001	
Sale (Post 1)			0.006***			0.006***
Sale (Post 2)			0.001**			0.001*
Sale (Spatial)				-0.01**		
Sale (Spatial, Pre 1-2)					-0.002	
Sale (Spatial, Post 1-2)						0.001
% Black		0.045***	0.045***	0.045***	0.045***	0.045***
Δ % Black		-0.005**	-0.005**	-0.005***	-0.006***	-0.006***
% Hispanic		-0.007***	-0.007***	-0.007***	-0.007***	-0.007***
Δ % Hispanic		0.013***	0.013***	0.013***	0.013***	0.012***
Year (2011)	0	0	0	0	0	0
Year (2012)	0	0	0	0	0	-0.001
Year (2013)	0	0	0	0	0	0
Year (2014)	0	0	0	0	0	-0.001
Year (2015)	0	0	0	0	0	-0.001
Year (2016)	-0.001	0	-0.001†	0	-0.001†	-0.001*
Year (2017)	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
AIC	58033	57101	56544	57069	57010	56475

† = p < 0.1 * = p < 0.05 ** = p < 0.01 *** = p < 0.001

Chapter 2 References

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